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VII.

SIMPLE ACUTE THYROIDITIS, WITH REPORT OF
TWO CASES.

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PHILADELPHIA,

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If journal and text-book literature can be depended upon simple acute thyroiditis is a rare disease. Personally, I have seen only two cases and these within the past few weeks. A careful search of medical literature shows but few authenticated cases reported.

MYGIND (*Jour. of Laryngol.*, March, 1895.) has contributed an interesting paper on acute thyroiditis, of which he distinguishes a suppurative and a simple form. Of the latter he has collected 17 undoubted cases ending in resolution and adds 1 observed by himself. He has also collected 21 imperfectly reported cases. He describes the disease as follows: The disease is more common in females and between the ages of twenty and thirty years. No distinct causes are discoverable; the onset is abrupt, and there is early vague pain in the neck. After a day or two the thyroid enlarges to the size of a hen's egg or to a greater size. The swelling and symptoms subside about

the third day, and often very abruptly. Pressure-symptoms such as dyspnea, dysphagia, hoarseness, or cyanosis, are sometimes observed, and fever is more or less marked in all cases:—The suppurative form occurs in septic diseases such as puerperal fever, and is usually distinguished by the character of the fever and general symptoms, together with local signs of suppuration. The prognosis in the simple form is absolutely favorable, and rarely is any lasting infiltration of the gland left after the attack.

E. SHIELDS (*N. Y. Med. Jour.* Oct. 1, 1898.) reports a case of a girl developing normally until ten months of age, when an attack of acute thyroiditis occurred without suppuration, lasting one week and being followed by atrophy of the gland; growth ceased and the child, now seven years old, is a typical cretin.

J. ELIOT used thyroid extract in acute thyroiditis; the swelling subsided and symptoms disappeared. (*Va. Med. Semi-Monthly* Jan. 28, 1898.)

BRADSHAW (*Med. Record* Nov. 2, 1895.) reports a case of acute inflammation with swelling of thyroid gland, which subsided without suppuration, the only alarming symptoms being dyspnea.

LION and BENSAUD (*Bull de la Soc. Anat de Paris* June, 1894.) report a case of pneumonia in which, after a slow convalescence had been established, there occurred sudden pain, tenderness and swelling in the neck. The temperature rose to 102.9° F., and an abscess developed in the left lobe of the thyroid gland. This was found to contain a pure culture of pneumococci.

JEANSELME (*Gaz. des Hospitaux* No. 15, 1895.) contributes a comprehensive study of infectious thyroiditis and strumitis. "Middle age and female sex predispose to these affections, (both cases here reported were males, aged 24 years), and they are very common in the puerperium and after traumatism or in cases in which venous stasis has occurred. Moreover, an enlarged thyroid is especially liable to infectious troubles." He concludes that the immediate cause of thyroiditis is bacterial infection. This may be true, but the casual factor cannot always be traced. He does not recognize the simple acute variety which undoubtedly does exist.

The thyroid gland is similar in structure to the supra-renal capsule and pituitary body and is unprovided with an excretory duct. Originally this does not seem to have been the case. Hamilton in his deductions concludes "that the central lobe appears to have been furnished with a duct which opened on the dorsum of the tongue at the foramen cecum. The lateral lobes are developed from one (the fourth) of the branchial clefts and may be regarded as having been primitively racemose diverticula of the pharynx with alveolar terminal pouches, and he states that without doubt their function was that of mucus-secreting organs. Occasionally the thyro-glossal duct exists in man.

The middle lobe has dwindled down into the isthmus and the occasional pyramidal lobe. The alveoli of the lateral lobes have become shut sacs—the thyroid vesicles. These vesicles still retain their glandular character in the fact that they are lined with epithelium and secrete an albuminous colloid substance. The secretion, however, is no longer poured into the pharynx, as it was originally, but is removed by the lymphatics of and those surrounding the organ. If the gland be squeezed the secretion can be forced into these lymphatics.

The function of the gland, as you all know, is still somewhat problematic, but whatever that function may be, the gland is generally supposed to be comparatively inert in its growth, yet it is of the greatest importance in maintenance of health. Its abundant blood supply would support this view.

The functional activity of the thyroid corresponds with that of the supra-renal, being greatest in youth. It is associated with the greatest general functional activity and its removal in youth is fraught with greater dangers than when removed from the aged.

Glandular involvement, as a rule, causes rapid rise of temperature. This is especially true in the thyroid gland; also the blood seems to be excessively fibrinous. I do not know whether this is true in all cases or not, but in the two cases coming under my observation the marked blood alteration was the increase of fibrin, together with a diminution in function of the red blood corpuscles, which caused deficiency of oxy-hemoglobin. The fact that the

gland seems to have considerable to do with the metabolic changes may account for this rapid change in temperature and excessively fibrinous condition of the blood. It is practically the same change, although not so marked, which takes place in the blood when the patient is suffering from croupous pneumonia.

The thyroid gland in man, although not strictly a secreting gland, does manufacture a colloid-like substance. The gland not having any excretory duct, the secretion is taken up by the surrounding lymphatics. Now, in acute thyroiditis, or inflammation of the capsule of the gland, it would not only interfere with secretion, but also interfere with absorption of that secretion by the surrounding lymphatics, for during the inflammatory process, by throwing out of leucocytes and proliferation of embryonic cells, the lymphatics are closed. When the inflammatory exudate organizes around the gland, and when the gland structure continues to elaborate this gelatinous material, there is, owing to the failure of the lymphatics to perform their function, necessarily an accumulation within the gland structure. This, then, would cause permanent enlargement or goiter.

The symptoms vary, some being slight and local, others severer and accompanied with pronounced general phenomena. It is possible to have an acute thyroiditis in an already enlarged goitrous gland. This is called *strumitis* by the German writers and, as shown by Tavel, is nearly always due to some infection.

Acute thyroiditis may involve one or more of the lobes, but rarely ever occurs in the median lobe. The acute infection may end in suppuration, multiple abscess formation, although fortunately this rarely ever takes place. Tendency to suppuration will be shown by the irregular temperature, chills and general systemic condition of the patient, together with the marked edema within the trachea, larynx and pharyngeal structure. The pus may burrow behind the trachea and even rupture into the esophagus.

In the infectious diseases it is a well known fact that we frequently have chondritis and perichondritis of the thyroid cartilages; these cause considerable swelling and must not be confused with acute thyroiditis. It frequently

occurs in the convalescence of typhoid fever, in which the typhoid bacillus and staphylococci occur; also in conjunction with gastro-intestinal troubles, with bronchitis, influenza, pneumonia and various other infection diseases. In puerperal cases streptococci are most commonly found.

Owing to the enlargement of the gland, there is difficulty in swallowing, disturbance of speech and pain on movement of the neck. The enlargement of the gland may cause considerable and serious compression of the veins and nerves of the neck. Fever is always present, and the temperature is sufficiently like that of typhoid fever to be confusing in the early stage of the disease.

There is usually severe and depressing headache; often considerable vertigo and accompanying epistaxis. In the severer cases with rapid swelling, cyanosis may occur.

Acute thyroiditis usually terminates in resolution, sometimes with induration and infiltration, rarely in abscess formation.

The diagnosis from simple congestion of the thyroid, acute exophthalmic goiter, hemorrhagic goiter, and other thyroid affections is made by the presence of the fever, pain and other signs of inflammation.

Acute thyroiditis is a rare condition. The idiopathic cases are rarer, usually being traced to an acute process.

The first case which I wish to report presented himself at my clinic at the Jefferson Medical College Hospital and as I was absent from the clinic that day my chief of clinic sent him to the medical ward. Professor Hobart A. Hare, who was in charge of the medical ward confirmed the diagnosis. I am indebted to Dr. John C. DaCosta, Jr., for the blood examination. The history of the case is as follows:

Jacob Weiss, age 24 years; single; by occupation a tailor. His family history is good; father and mother, two brothers and two sisters living; no tubercular history. The patient stated that he had a hard chancre six years ago; he received treatment and has had no evidence since of the infection.

His present trouble began on the 13th of February, 1900. It began with a feeling of soreness in the throat, which was more pronounced on swallowing. There was a sensation of swelling or fullness within the throat which

was more pronounced on swallowing. Three days later he noticed an enlargement in the median line over the thyroid gland. When admitted to the hospital this swelling had extended from the median line backward to the sternocleido-mastoid muscle and down almost to a level with the clavicle. There was a slight enlargement on the right side, although not as marked as on the left. Palpation showed this swelling to be in the lobes of the thyroid gland. The tumor was not adherent to the overlying tissues; it was extremely painful on pressure. The external surface was slightly reddened and there was a decided increase in local heat. Swallowing was more painful and the laryngeal examination showed decided congestion, not only cyanotic, but inflammatory, involving all the laryngeal and surrounding structures. The patient was markedly depressed and had that pallor characteristic of infection. He had severe headache and loss of appetite; the tongue was decidedly tremulous, showing imprints of the teeth. There was a slight tendency to constipation, although the movements of the bowels were fairly regular. The heart and lungs were normal. The temperature chart resembled somewhat that of a typhoid fever case, rendering the diagnosis rather difficult, the morning and evening temperature differing from one to three degrees, the highest point which it reached was 104. The urine examination was negative, except a low percentage of urea. The patient was discharged March 1st, there being no constitutional symptoms and only slight enlargement of the gland.

The treatment consisted in confining the patient to bed and the administration of $\frac{1}{10}$ grain of calomel with 1 grain of soda every hour for eight doses. This was kept up for several days and each morning a saline was administered. Cold was applied in the form of ice packs. The patient was given stimulative nourishment and recovered in some eight or ten days. When he left the hospital there was very little swelling.

The second case I did not see during the markedly acute stage, but the history is practically the same as in the first case. When he consulted me his history was as follows:

Mr. H. C., age 24 years; of good family history and in excellent physical condition. One month before consult-

ing me (about the 15th of Februry) he noticed a soreness on swallowing and experienced a sensation of a swelling in the throat. On examination he noticed an external swelling. This increased for several days and both lobes of the thyroid gland became extremely sensitive, with marked enlargement. The swelling increased the neck circumference about one inch and a half. There was marked external redness and considerable difficulty on swallowing. He was treated at the time by laxatives and external applications of cold. The soreness disappeared as well as part of the swelling, but after three or four days upon the disappearance of the soreness, which was some eight days from the onset, both lobes of the gland began to enlarge and when he presented himself for examination both lobes were extremely enlarged and very solid with no evidence of inflammation. There was some swelling and cyanotic edematous infiltration within the larynx. The condition as it presents itself resembles true goiter. In this case, as I suggested elsewhere in the paper, I believe the enlargement was due to the fact that the lymphatic absorption had been cut off, causing retained secretion within the gland. He is now under treatment, taking four times daily, 5 grain doses of thyroid extract.

It is a curious coincidence that these two cases should have occurred at about the same date and that both were males 24 years of age. Was it that the climatic conditions influenced certain individuals at this time, rendering them susceptible to infection, or was it a mere coincidence?

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VIII.

A CASE OF ACUTE THYROIDITIS OF RHEUMATIC
ORIGIN. (THYROIDITE RHUMATISMALE
AIGUE).

RHEUMATIC PHARYNGITIS, PAINFUL JOINTS, INFLAMMATION OF
THE THYROID GLAND, SUPPURATION, RECOVERY.

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Among the etiologic factors of idiopathic thyroiditis, rheumatic infection, if we may so call it, or the rheumatic influence as it has been styled by others, has held a prominent place.

This view, already enunciated by older physicians, as Ph. Fr. Walther, was again affirmed at a later date by Kocher and others, and most strenuously, with much clinical demonstration, by French observers as Raymond, Vulpian, Charcot, Zouiwitch.

Another prominent causal factor is said to be atmospheric changes, "*Reffroidissement*," "*Erkaeltung*." Lebert assigns this as a cause in 9 of the 50 cases collected by him from various sources. In the Dictionary of Medicine edited by Quain (first edition), it is stated that idiopathic thyroiditis "is generally due to sudden atmospheric changes."

If now, as the author of the particular article in the Dictionnaire Encyclopaedique de Medicine et de Chirurgie (Dechambre, III Serie) seems inclined to do, we take *refroidissement*, *erkaeltung*, *sudden atmospheric changes*, to be synonymous with rheumatic infection or rheumatic influence, and there is good ground, as can be readily understood, for so doing—the importance of this latter as an etiologic factor of this form of thyroid disease, is cer-

tainly much magnified. Of all the cases of acute idiopathic thyroiditis reported, 50 per cent. or more would be of such causation.

Latterly, however, much doubt has arisen as to the correctness of this teaching, and it has been clearly and definitely expressed by Ewald. Reviewing the reported cases, he finds that a large number are cases of strumitis, and should therefore, not be included in this category of idiopathic thyroiditis. In quite a number of others, the causal relation between the rheumatism and the thyroiditis is not clearly established. Finally, after all this elimination, the question is raised as to the few remaining cases—whether they should not rather be looked upon as complication or sequel of the rheumatic fever, than as idiopathic cases.

There is really, according to this eminent authority, no such affection as acute idiopathic thyroiditis of rheumatic origin, or as it has been styled by French writers, *thyroïdite rhumatismale aigue*.

As to the French observers, he says it is well known that they have an inherent tendency to bring all parenchymatous inflammations into more or less intimate relation with a rheumatic diathesis or influence.

In view of all this, any clinical fact that may further aid to elucidate this question, is certainly of interest; and it is for this reason that the following case is here recorded:

F. B., aet. 22, female, single, 5 feet 3 inches in height; of large build; in fair flesh; German, but 8 months in this country. Lives with her sister and does housework for the family.

The evening of Febry. 25, 187-, I was called to see her. She complains of pain in her throat, and of difficulty in swallowing. Looking into the mouth, I found the roof, the posterior part thereof, the palatine arches, and the posterior pharyngeal wall, reddened and inflamed. Tonsils not enlarged. Some fever; temperature 103°. Completing the examination of the mouth, and whilst taking her temperature, she informed me that her left knee also caused her considerable pain. Examining it, I found no redness, no tumefaction, no tenderness to touch, but there was evidently some elevation of temperature as compared with the right knee.

I painted the inflamed throat with a mixture of iodine and glycerin (ijss to vss) and prescribed quinine (in solution with dilute sulphuric acid) 3 grains every 3 hours. As to the knee joint, I directed that flannels wrung out in hot water be applied to it.

On my next visit, the following day, I found the patient much better. The pain in the throat was entirely gone, and she could swallow very well. The fever had subsided. Looking into the mouth, I found the parts greatly improved, the redness almost entirely gone. Nevertheless, as a precautionary measure, I made another application, a light one, of the iodine and glycerin mixture, and directed that the quinine solution be continued for another day, at intervals of 4 hours now. The knee joint was also much better; the pain was entirely gone and the temperature the same as that of the well joint. I left with directions that if necessary, I should be called.

March 2nd. Was again called to see Miss B. She again complained of pain on swallowing, and pointed to a swelling under the lower jaw, a little to the right of the symphysis menti. She complained also of much pain in the left shoulder joint and over the biceps and triceps muscles of that arm. Looking into the mouth, I found the parts there and beyond normal in appearance. I directed that the swelling under the jaw, as well as the painful joint, be painted with tincture of iodine, and for internal administration prescribed iodide of potassium with vinum colchicum, to be taken t. i. d.

The pain in the left shoulder and arm were soon greatly improved, but the swelling under the jaw continued to increase in size despite all treatment. It grew larger and larger; extended over to the left beyond the median line and downward in front of the larynx, toward the sternum. Resolving unguents proved equally ineffectual. The swelling looked red, glistening, tense. Morning temperature 102° F. As the swelling became greater, the dysphagia became more marked, so that even the swallowing of fluids was at last attended with considerable difficulty. There was also some dyspnoea, most severe at night, so that the patient got but little sleep; the shortness of breath woke her up every little while, she said.

I directed now, that the swelling be poulticed (warm

flaxseed poultices). By the 8th, a soft, fluctuating spot could be detected in the centre of the swelling; by the 11th, the whole anterior portion of it was soft and doughy to the touch. To be certain that the fluctuation was due to pus, and as a precaution, I introduced, in the presence of a colleague now deceased, a hypodermic needle; a drop of blood followed, but no pus. I repeated the process at several points, but always with the same result. I abstained from further interference and continued the poultices. In the afternoon, when I called, I found pus exuding from all the punctures. The swelling was incised, and an enormous amount of pus evacuated. The patient recovered rapidly.

A rather peculiar feature was that after the abatement of the suffering in the swelling, after the incision, the pain in the left shoulder became again more prominent. Whether it had always been the same but had only been masked by the greater suffering caused by the inflamed thyroid, or whether it was really an exacerbation due to a concentration, now, of the disease in that part of the body, is a question that I could not solve. The joint continued rather stiff and more or less painful until the warm weather had well set in.

There can certainly be no question here as to the rheumatic nature of the morbid manifestations; the particular character of the pharyngitis, the pain in the joints, now here now there, are demonstrations that cannot be gainsaid.

Furthermore, it is a case of idiopathic inflammation and not a complication or a sequel. It does not appear after the disease has already lasted a more or less long time, with more or less severity—a period when complications may be usually expected, nor at its finality, but ensues at the very outset of the rheumatic infection, and becomes the point of greatest virulence of manifestation of the *materies morbi* present in the system.

It is clearly evident, therefore, that in this case at least, a diagnosis of acute *idiopathic* thyroiditis of rheumatic origin, or acute rheumatic thyroiditis, is fully justified.

Another and certainly interesting feature in this case, and not to be lost sight of in the much graver affection of the thyroid, is the *rheumatic* pharyngitis. As related, it

answers fully to the classical description first given of it by Trousseau. It seems to be a rather rare affection. Most of the works on diseases of the throat that I have consulted give it but little space, and content themselves with repeating the description of Trousseau already referred to. The authors seem not to have met with the disease itself.

It may be that this is because, as Morrell Mackenzie has it, it is very difficult of recognition unless accompanied by other phenomena of the rheumatic infection.

In my own experience, I can recall but one other such case.

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IX.

NECROSIS AND EMPYEMA OF THE FRONTAL SINUS.—OPERATION.*

BY THOMAS R. POOLEY, M. D.

NEW YORK.

On the borderland between the surgery of the eye and nose, lie the operations for the various affections of the accessory sinuses, involving as they do both of these organs in the train of symptoms to which they give rise, whether the disease be the varying degrees of an inflammatory origin, caries, necrosis, or neoplasms. Sometimes the eye symptoms are dominant, again this organ may be immune and the nose only affected.

Since all of these pneumatic spaces communicate more or less directly with both the nose and the orbit, it comes within the province of both the rhinologist and ophthalmologist to deal with them. A recognition of the fact of the connection of certain growths which invade the orbit with these cavities or air spaces, has proved of much value to the operator on the eye, especially in the more clearly ascertaining that many of the orbital tumors such as sarcomata, exostoses and other growths of the orbit usually originate in them, and for their radical removal they must be followed into their habitat. This statement is true not only of such neoplasms, but also of those tumors of the orbit called retention cysts, which are the direct result of catarrhal or purulent fluid in the sinus through obstruction in the nasal conduit.

While, therefore, most of the symptoms developed in the case above cited, were such as to cause the patient to apply for relief to an ophthalmic surgeon, rather than a rhinologist, I am, nevertheless, led from the considerations already mentioned to present it to this Society, coming as

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it does within the domain of their branch of surgery as well as that of the ophthalmologist.

I shall briefly report the case and operation, and then pass hastily in review, the symptoms usually occurring in such cases, and the several operations which have been practised for their cure, dwelling with more emphasis on those which come within the special care of the ophthalmic surgeon.

The patient, a healthy strong looking man, consulted me on December 8th, 1899, by the advice of a colleague, who thought an operation was necessary, and kindly asked me to do it. The following history of the case up to the time I saw him is kindly furnished me by his physician Dr. Jno. W. Kniskern.

"Mr. W. E. Y., aet. 38. Merchant.

Had syphilis 16 years ago. Otherwise in good health until 1895. In 1895 had an attack of influenza, followed in two weeks by scarlet fever. During the latter part of the attack an abscess developed in the orbital region associated with considerable orbital cellulitis. This finally pointed and broke in the superciliary region, midway between the canthi. Following this the abscess discharged for about six months. This was treated by his physician, by daily irrigations for a time and finally it was daily scraped, the presence of dead bone having become manifest. This treatment was directed toward the relief of a supposed denudation of the orbit and the curettage was directed toward the removal of this orbital dead bone.

In 1896 his physician decided to operate for necrosis of the orbit and did so without however getting any sequestra. Following this operation there was marked retraction of the upper lid so that he was unable to entirely close the lid at any time.

In the winter of 1897 he visited Philadelphia where he was again operated for the retraction of the upper lid. The incision was made in the line of the original incision, the cicatricial bands were loosened, the lid was partially restored and the sinus closed. The sinus was in the original location and had never entirely stopped discharging until this operation. For more than a year following this operation the discharge from the site of the old sinus entirely stopped.

In the spring of 1899 the sinus again began discharging. Mr. Y. consulted the reporter, being exercised about the increased retraction of the lid. The exact condition was not fully realized for about two months, the constant discharge being attributed to some orbital necrosis until June of the same year when in searching for necrosed bone the probe suddenly slipped in an opening which terminated in the region of the inner canthus. A diagnosis of a frontal sinus trouble was made and confirmed by Dr. Mittendorf who saw him in consultation at that time. July 27, 1899, an operation was attempted at his home by the reporter. It was hoped that the sinus trouble might be relieved, but upon opening the region the complications seemed so grave that the reporter only removed a small sequestrum that readily presented itself, contenting himself by only restoring the lid by a plastic operation. The subsequent course was the old story of retraction of the lid and no permanent benefit. In October another operation of a plastic nature was done, resulting in a partial restoration of the lid which remained until January of 1900, when a consultation was again had with Dr. Mittendorf. A radical operation was proposed and accepted by Mr. Y. which was at once performed, Dr. Pooley being the operator."

When I saw him there was a swelling of the brow of an indurated character hemispherical in shape extending from the upper inner corner to about the middle of the orbital margin, and at this point just below the brow there was a fistula with pouting edges, clearly pointing to the presence of dead bone; the upper lid was drawn up in this direction and firmly adherent to the puckered indrawn scar—so as to cause a decided though not extreme ectropion with slight eversion of its margin. Because of this condition complete closure of the eyelids was impossible and there was a small chink in the palpebral fissure which kept the cornea constantly exposed. In spite of this the cornea was clear, however, there being no infiltration nor ulcer to be seen. Through the fistula a blunt probe could be passed upward, backward and inward into the frontal sinus—and the presence of dead bone detected. There was a constant but not profuse discharge of a muco-purulent character from this opening. There was no marked displacement of the eyeball nor diplopia. Vision was unim-

paired and the fundus oculi normal. It was for the relief of the frequently recurring frontal headaches, the annoyance of the constant discharge and the deformity caused by the ectropion that he sought relief; but the constant menace of other complications, such as erysipelas, meningitis or cerebral abscess, was to be considered, and a radical operation was therefore advised and promptly consented to by the patient.

December 9th I operated, the patient under ether, in the presence of his physician, Dr. Kniskern, Dr. Mittendorf, Dr. Claiborne, Dr. Myles and others. I am especially under obligation to Dr. Myles, both for his valuable assistance and counsel during the operation, who from his large experience in these operations and through acquaintance with the subject, was of great help to me.

The eyebrows having been shaved, an incision was made along the upper border of the eyebrow from the nasal end to the centre, including in the incision the fistulous opening; the periosteum was detached and held out of the way by retractors.

The anterior wall of the sinus was then opened by the use of a chisel toward the inner side, and gradually extended outwards so as to expose the entire frontal sinus which was distended much beyond its usual dimensions and filled with polypoid granulations; no pus escaped. The sinus was now explored with a probe, in every direction; in the nasal part were found two small pieces of carious bone which were removed. In the outer part corresponding to the point of the fistula the probe detected loose bone, which was seized by forceps and carefully removed without force. It was a thin sequestrum with a perforation in it, through which the probe had passed. The sinus was then most thoroughly cleaned by scraping out the polypoid granulations with a sharp spoon. A catheter was passed from the sinus through the ethmoidal cells into the naso-frontal canal and the infundibulum and out of the nose. On the end of the catheter was an eyelet through which a thread was passed and attached to a soft rubber tube which was then drawn through, carrying the tube with it, one end coming through the opening in the sinus, the other through the nose. The ends of the tube were tied together to keep it in place and the cavity packed with strips of iodoform

gauze; over this was placed a pad of the same material, some absorbent cotton and the whole held in position by a firm roller bandage. The operation was somewhat protracted; there was considerable hemorrhage but the patient well rallied. On the second day there was a little rise of temperature, but the next day the temperature fell to the normal.

Three days after the operation he returned to his home in a distant city with his medical attendant. I have heard from him but once since his return, through a letter from his physician who reported that the case was progressing favorably, the wound was looking well, and the drainage through the nose was effective. I may add that there was but little relief to the ectropion effected by the operation; it was found impossible to release the scar which caused it from its attachments and a blephoraplastic operation will most likely have to be done.

This case shows in succession the several stages in which the disease progresses. The first stage is the propagation of a catarrhal rhinitis into the sinus. The fronto-nasal canal is narrowed by swelling of the walls, leading at first to intermittent, later to permanent retention of secretion in the sinus. The symptoms are chronic or sub-acute rhinitis with frontal headaches. This stage is usually amenable to treatment by proper treatment of the nose. Second stage—a swelling occurs along the upper border of the orbit in the upper inner angle of a hemispheric shape; there is usually no tenderness and fluctuation is not readily made out, and size of swelling varies. The posterior limit cannot be made out. Eyeball is (not always) displaced forward and inwards. The development is slow. Empyema may be mistaken for sarcoma or osteoma.

The third stage is characterized by the occurrence of caries and fistulous openings.

Before I consider the different operations which have been practised, it may be added that syphilis, tuberculosis and other diseases may produce an osteo-periostitis of the frontal sinus accompanied or followed by external caries or necrosis with profuse suppuration and that the frontal sinuses may be invaded by the pus, but always in the direction from without inwards.

The operations which have been made are the following;

(1) Evacuation of the contents of the sinus by simple puncture. It gives temporary relief but the sinus will almost invariably fill again.

(2) Opening of the anterior wall, removal of polypi and dead bone with a sharp spoon, draining the cavity with a perforated silver tube or sterilized elastic one, syringing the cavity with caustics and antiseptics. Knapp says it cures about 50%, that the duration of treatment is very long and relapses frequent. It really amounts to the establishing of a small fistula which has to be syringed every day for a long time and I venture to say ought to be superseded by the more radical operation.

(3) The method known as the radical operation, which while it is particularly applicable to the third stage of the disease, caries and fistula, seems to me might also give the best result in the second stage. It is done after the same method as that for chronic suppuration of the middle ear. All the carious and necrosed bones are removed and the communication with the nose re-established or the cavity closed by granulation and epidermization.

It is interesting to note that this method now in much favor in some form or other is not new, but was described in English and Continental literature 150 years ago. L. H. Runge¹ describes obliteration of the sinus frontalis by his father.

Panas in his treatise on Ophthalmology (Vol. II p. 474, 1894) recommends trephining of the frontal or orbital wall combined with a drainage tube which he draws with a curved catheter into the fronto-nasal canal. The method was employed by me except that the wall of the sinus was opened with a chisel instead of trephining and a difference in the site of incision used to enter the sinus, so that I need not go over again the description of the technique of the operation, only to say that Panas speaks of the deformity left which he says may be modified by following the rule which he has laid down, to form a triangular flap consisting of the whole integument of the glabella and the periosteum, the base being above one line along the median line, the other in the orbito-palpebral groove.

¹Hallei Disput. Chir. 1750.

Panas says the length of time required too is an objection, to avoid which all the anterior wall may be removed, but this leaves an unsightly scar, as Kalt has done in one case when the recovery was very rapid. Kuhnt in his monograph on the inflammatory diseases of the frontal sinuses (Wiesbaden, 1895) recommends essentially the same method as Panas and says the disfigurement was avoided if the periosteum was preserved. Others who have recommended the radical method are Nebinger¹ (from the interior wall) and Jansen² from the lower wall.

(4) Finally a method called the osteo-plastic opening of the frontal sinus was described at the meeting of the International Medical Congress at Moscow, August 19th, 1897, by Dr. S. Golovine, which was a modification of the operation of Prof. Czerny. "He makes an incision along the upper border of the eyebrow from the nasal end to the centre then another small one through the nasal end of the first incision from the lower margin of the brow obliquely upward and inward.

A curved incision of about two centimeters in height is now made through the periosteum, the basis of which is formed by the inner third of the upper margin of the orbit along this line, the bone is opened with a chisel. The osteo-periosteal flap thus obtained, and forming the anterior wall of the sinus can easily be lifted and turned on its base, the periosteum and soft parts remain intact. Through this opening the frontal sinus is now examined and scraped and drainage into the nasal cavity by an elastic catheter is established. After which the flap is put back in place and the skin-wound hermetically sealed."

There has been primary union in all of his cases with a satisfactory result.

On the whole the results of the operation for empyema of the frontal sinus are good, the headaches and cerebral symptoms disappear and the eye returns when displaced to its normal position without loss of function. Without such interference a fistula may exist as it did in this case for years and brain complications ensue at any time.³

¹Described by Baum, Inaugural Dissertation, Erlanger 1890.

²Jansen, *Archiv. für Laryngologie* Bd 1 No. 2.

³Since this was written I have received the following report of the progress of the case from Dr. Kniskern:

"At present the status of the patient is as follows:

The drainage tube was removed on Feb. 2, 1900. Following this the sinus was packed through the opening preserved by the tube until the present, (Feb. 16th) at which time the discharge is merely nominal, all inflammatory reaction is apparently absent and the opening presents an appearance as nearly normal and healthy as seems possible.

An interesting point in this case is that the retraction of the lid which increased after the January operation has materially subsided since the removal of the drainage tube."

X.

LESIONS OF THE FRONTAL SINUS AND ANTERIOR ETHMOIDAL CELLS AND THEIR SURGICAL MANAGEMENT.

BY ROBERT SATTLER, M. D.,

CINCINNATI, O.

The inaccessibility of the air-spaces of the skull, as well as the rarity with which these cavities become affected, have rendered the diagnosis of such lesions to some extent, difficult and the surgical measures undertaken for their relief, more or less unsatisfactory. In the attempt to clear up this rather obscure field, general, ophthalmic, rhinologic and oral surgery have each, during recent years especially, contributed a certain share towards a better knowledge and understanding of the lesions which invade these spaces. This has led to a more rational and eminently more satisfactory surgery.

That ophthalmic surgery has contributed important diagnostic, as well as many practical suggestions directing a more successful management of these cases, is due to the intimate topographical relationship of the anterior ethmoidal cells and the sinuses of the frontal bone with the margins, cavity and contents of the orbit. The fact must also be admitted that in lesions of this class (which include those of the maxillary sinus as well and also the still more uncertain lesions of the sphenoidal sinus) ocular and orbital symptoms are often the most conspicuous features which are present and even if less conspicuous, they may happen to be the only evidences by which the origin and seat of the disturbances which develop, can be traced to these concealed recesses of the skull.

It is of interest to note that Mackenzie in his classical work on Diseases of the Eye, gave a lucid description and anticipated the exploration and opening of all the sinuses (even the sphenoidal) for diagnostic and surgical purposes.

The literature of general surgery also contains frequent reference to this subject.* It was not until more recent years, however, that the extensive anatomic and pathologic researches of Kuhnt (1), Luc (2), Derrien (3), Fraenkel (4) and especially the exhaustive investigations of Zuckerkandl (5), aroused renewed interest in the affections of the frontal sinus and its accessory cavities.

These anatomic researches have fully corroborated what has long been accepted, that the frontal sinus is absent at birth. The real sinus-cavities whose function like that of the ethmoid cells and maxillary sinus, is mainly to lessen the weight of the forepart of the skull and to add resonance to the voice, appear during the first year of life. During early life, they remain of small dimensions and develop only very slowly. It must not be assumed, however, that during this period the frontal sinus is not the seat of disease. On the contrary, in early life and infancy, we not infrequently meet with lesions of the frontal sinus and its anterior ethmoidal cells, although the former is present only as an interspace and the latter are small, but in free communication with the sinus. In these cases, the anterior cells adjacent to the frontal sinus and in some instances even those communicating with it, are commonly affected. The walls are so thin that the contents are extruded into the small cavity of the sinus and are either discharged (among symptoms resembling local periorbitis) into the nose or become incarcerated, followed

*Even in the early history of surgery, isolated instances of operations on the sinuses occur and Morgagni relates that the frontal sinus was opened and a worm removed by Cesar Magatus, a surgeon of Bologna. Occasional mention of the limited external operation is also found during the last century. In the earlier part of the present century, Dezeimeris published a comparatively important treatise on this subject and somewhat later, Bouyer added some interesting histological and pathological results.

(1) Kuhnt:—Die Entzuendlichen Krankheiten der Stirnhoehlen

(2) Luc:—L'Etude des Suppurations des Sinus frontal.

(3) Derrien:—Etude sur L'Empyeme des Sinus frontal. Thèse Paris.

(4) Fraenkel:—Beitrag zur Pathologie und Aetiologie.

(5) Zuckerkandl:—Anatomie der Nasenhoehle.

See also, Lothrop: Anatomy and Surgery of the Frontal Sinus, a recent work which came under my notice while this article was in preparation.

by inspissation or even, as in a case under my observation, by periostosis of the affected region.

At puberty, owing to the recession of the brain, the sinuses undergo considerable enlargement. In advanced life, owing to the absorption of the cancellated tissue in their vicinity, they sometimes undergo perceptible increase of dimensions. They are relatively larger in the adult male than in the female and the sinus on the left side is commonly the larger of the two. Variation in size is marked in different individuals and in rare cases, the sinus attains an enormous size, a dilation which generally must be looked upon as purely physiologic, although a latent pathologic process cannot always be excluded. Occasional anomalies of shape and structure (such as a poorly developed or abortive sinus with the absence of the vertical portion) are occasionally met with, but the complete absence of one or both sinuses is exceedingly rare*

In the search for the various causes which are responsible for lesions of the frontal sinus and anterior ethmoidal cells, it will be found that traumatism plays a not infrequent role. Fractures of the walls of the frontal sinus occasionally occur, and may lead to infective and obstructive processes. In these cases, it has happened that the secretion from the sinus has been mistaken for a discharge from the cranial cavity. A curious emphysematous condition of the eyelids, scalp and face sometimes also makes its appearance, a phenomenon which is due to the forcing up and escape of the air through the fronto-nasal canal and under the overlying soft tissues of the brow and frontal region. Foreign bodies also may lodge in the

*Race is also a factor in sinus development. The sinuses in Europeans are larger than in negroes and they are very imperfectly developed in Australians,—a deficiency to which some attribute the peculiar lack of vocal resonance in this race. It is of interest to note that the air-cells admit of much higher development in certain mammals and birds than in man. This applies especially to the ruminant and some other quadrupeds where the sinuses extend backwards over the top of the skull and penetrate the cores of the horns in oxen, antelopes and sheep. The elephant, however, according to Prof. Owen, presents the most remarkable development of air-cells:—"the intellectual physiognomy of this huge quadruped being caused, as in the owl, not only by the actual capacity of the brain-case, but by the enormous extent of the pneumatic cellular structure between the outer and inner plates of the skull."

sinus. In rare instances, calculi composed mostly of lime may be formed within the sinus-cavity. Bullets, projectiles of all kinds, knife-blades, scissors broken off in their passage through the skull, may also become arrested and lodge here. The most interesting feature in this connection, however, is exhibited by foreign bodies which gain admission to the sinus by the natural channels. Reference is here made to the introduction of the ova of insects, maggots, etc., which are deposited on the mucous membrane of the nose or may be inhaled from flowers and fruits.*

As a rule, inflammatory states of the frontal sinus and its connecting air-spaces, are due to local causes. General and systemic infection, however, not infrequently occurs. The part which syphilis plays in chronic sinus affections has long been recognized. But recent researches in pathology and bacteriology (especially the investigations of Weichselbaum and Fraenkel) prove conclusively that acute systemic disease not infrequently attacks the sinus-cavities. In 146 autopsies made by Fraenkel in acute disease (scarlet fever, diphtheria, influenza, cerebro spinal meningitis, etc.) he found the sinuses affected in 63 cases, the frontal sinus being least commonly and the maxillary sinus most frequently involved.

As regards the more common local causes, it will be found that inflammation of the frontal sinus may be due (1) to the transplantation of pyogenic products from the adjacent nasal cavity, or, in less frequent cases (2) to the direct extension (along the mucous lining or bony walls) of intra-nasal disease by way of the connecting channel or frontal canal.

The symptoms in the rare cases of acute sinus inflam-

*In India where this disease of the sinus is known as "Peenash," this exciting cause is quite common and the progress of the affection is marked by a pronounced muco-purulent discharge and often results in a necrotic and gangrenous condition of the eyeball, the bones of the face and the soft parts. Centipedes have also been found in the frontal sinus and according to Fraenkel "may remain there a number of years, the secretion of the cavities furnishing them sufficient nourishment." In a case reported by Gross, a child lost its life by the development of a large number of spiders," the parent-spider being most probably inhaled while the patient was smelling a flower."

mation do not differ materially from those accompanying the formation of pus in other closed cavities of the body. More or less fever at the onset, rigors, local swelling and edema, constant, severe and increasing pain unrelieved by anti-neuralgics, together with the previous history of an acute coryza, generally point conclusively to empyema of the frontal sinus. In some instances, the morbid process is brought to a close by the rupture of the sinus into the orbit or by the escape of the imprisoned pus into the nose, but in a typical case of empyema anything short of immediate surgical interference, means to invite cerebral complication and other serious sequelae (caries and necrosis of the walls of the sinus, etc.,).

In taking up the consideration of the chronic lesions of the sinus, it must be stated that, for an indefinite period, such lesions, or their final expressions, may run an entirely latent course both as far as local and constitutional disturbances are concerned. The low grade of inflammatory activity which commonly attends such processes and the compensatory hypertrophy or sclerosis of the walls which is hereby excited, combine to decree for the incarceration of pyogenic matter, granulation-tissue, inspissated pus, etc., an almost latent course with uncertain or absent clinical features.

Among the first tangible evidences is a diffused local tenderness of the upper marginal region of the orbit, without redness or swelling over the affected region. This is generally unilateral as it is rare to find both cavities affected at the same time. This gives way to transitory, painful swelling of the periosteum and bone, often with redness and swelling of the overlying soft parts. These symptoms come and go, lasting generally several days or weeks. Headache now becomes general. At the same time, there will be observed a characteristic indication, and this is, a change of contour of the inner, upper and in some cases even, of the inferior margin of the orbit. If the lesion is unilateral, and it generally is, the asymmetry of this important part of the face and the change of physiognomy which it entails, point with significance to an existing sinus-lesion. If tenderness on pressure or percussion is present, it is even more suggestive of this view.

The most careful rhinoscopic examination fails to disclose more than a chronic catarrhal process which is known to have been present and to which also the symptoms due to the sinus-complication are assigned. In some cases even, the symptoms of an existing nasal lesion are in abeyance during the progress of the sinus lesion.

If the grade of inflammatory activity remains low, it may happen that a chronic empyema may undergo partial absorption or inspissation and terminate in a contraction of the cavity with increased thickening of the walls; in other words, hyperostosis results. It may also happen at this stage, or with the presence of the symptoms referred to, that a spontaneous evacuation through the fronto-nasal canal into the nose effects, in some cases, temporary arrest, and in a few, termination of the sinus-lesion. In exceptional cases, in which hyperostosis of the walls takes place and recovery without external perforation results, there may come about as a remote sequence, neuralgic seizures of extraordinary severity and duration. A more frequent result, however, is the yielding of the walls at one or another point. In children, this is not infrequently the temporary angle of the sinus, but with them and with adults it is more often the lateral or orbital walls at a point near or even below the inner canthus of the eye.

The periorbital in this locality is firmly attached to the bone and is furthermore reenforced by the orbital fasciae and medial ligament and this explains the resistance which is offered to the burrowing pus. For this reason, the dissecting trail is often deflected and pushes its obstructive work lower down while its most frequent outlet is under and at the outer or temporal border of the tear-sac. Not infrequently, several fistulous openings discharging the contents of the sinus frontalis appear along the orbital margin near the middle or even its outer division. They may also undermine the periosteum tear-sac, erode the os unguis and superior maxillary of this region and without external perforation, discharge their contents into the nose. In particular do we observe this in broken-down syphilitic subjects. In such cases, both internal and external perforation is likely to take place.

The earliest ocular manifestations* are observed on the

*The Ocular and Orbital Symptoms of Lesions of the Frontal Sinus." (Medical News, Aug., 1899.)

part of the eyelids. A serous infiltration of the loose cellular fasciae of the roof of the orbit dependent upon and associated with the transitory exacerbations of the insidious sinus lesion, may interfere with the action of the levator muscle of the upper lid and also with the superior rectus muscle. Drooping of the upper lid and slight restriction of motion upwards is often observed. Proptosis due to the same cause and lateral displacement of the globe may also be present even at this early period. To these symptoms are added an edema of the inner third of the upper lid with dusky discoloration. This is, in some cases, so much like the inflammatory edema and tissue-infiltration which attend a suppurating chalazion, for which it is not infrequently mistaken. On the part of the conjunctiva,—especially the retrotarsal and ocular divisions,—engorgement of the venous channels, and frequently, chemosis are observed. This is not of inflammatory origin, but is due to obstruction of the outflow of the venous channels. In some cases, the upper fornix at this point is evulsed. Pus-trails may cause this and discharge their contents into the conjunctival sac.

The symptom of proptosis is a variable one and is not in conspicuous evidence even in pronounced cases of uncomplicated frontal sinus disease. In those cases in which a necrosing syphilitic lesion invades the ethmoidal cells and frontal sinus jointly, or all the pneumatic cavities are involved, this is almost uniformly present.

A feature of the exophthalmos accompanying sinus frontalis disease, deserves mention. In common with similar processes of the ethmoidal cells it is subject to great variation. At times it is present and again it disappears entirely. In most exceptional cases only, in which perforation under the periosteum takes place behind the orbital margin and insertion of the orbital fasciae and medial ligament and the dissecting trails push backward towards the apex of the orbit, is dislocation of the eye a necessary effect and exophthalmos a conspicuous symptom.

The successful treatment of sinus-lesions is almost exclusively surgical. In acute cases, of course, the clinical picture is so unmistakeable that there can be little or no question except to open the sinus and relieve

it as speedily as possible. In chronic suppuration of the frontal sinus, if spontaneous discharge has taken place into the nose along the natural channels or a fistulous tract has forced an opening externally or into the adjacent cells of the ethmoid or even into the maxillary sinus, the indications for operation are many. Such chronic lesions may manifest themselves by (1) indefinite or absent clinical features, with or without the history of an antecedent nasal lesion (2) the presence of a transitory swelling of the overlying soft parts and bone, which has been recurrent but which because of absence of pain is not regarded with apprehension by patient or surgeon; (3) transitory swelling of this region with unmistakable peri or hyper-ostosis with or without pain, as in syphilitic subjects; (4) recurrent neuralgia of excessive intensity and duration dependent probably upon mysterious impulses originating in the sinus (5) the growth of osteophytes or exostosis.

In former years, frequent attempts were made to effect drainage and establish communication with the nose by forcing a passage through, or re-establishing the closed or occluded fronto-nasal canal. It is not difficult to recognize that the internal operation (either by probe, irrigation-cannule or by puncture of the floor of the sinus) presents many difficulties and disadvantages. In the first place, as has been established recently, it frequently happens that there is no naso-frontal canal or no communication with the nose, or, on the other hand, a communication with the anterior ethmoidal cells is present. In addition to this, anatomic and physiologic variations of size, direction and location of the nasal canal or the existing ostia are so common, and pathologic alterations are so numerous and misleading, that the possibility of establishing successful communication has been disputed by many operators and even when it is said to have been accomplished, the result has usually been of questionable value. Moreover, autopsical and clinical evidences * are conclu-

*Luc and Jansen found frontal empyema almost invariably associated with the same disease in the anterior ethmoidal cells. "Zuckermandl with an enormous experience, never observed a case of suppuration in the frontal sinus uncomplicated by ethmoidal disease. E. Fraenkel performed 146 autopsies and did not find a single uncomplicated frontal empyema." (Quoted by Lothrop.)

sive that it is among the rarest occurrences to find an uncomplicated suppurative process of the sinus frontalis. In the vast majority of cases, the adjacent anterior ethmoidal cells are also invaded, the choked contents of the frontal sinus, owing to impenetrable occlusion of the fronto-nasal canal, having eroded the lateral or posterior wall and discharged into one or several of the adjacent cells of the ethmoid. It is admitted that the anterior ethmoidal cells on account of their location and the danger of complications, are almost inaccessible to intra-nasal interference, while the cells generally affected in sinus disease (those adjacent to and along the floor of the frontal sinus) are altogether out of the reach of successful intra-nasal surgery. So that, even where the anatomic and pathologic hindrances are not insurmountable, the internal operation is generally productive of little or no good, and, is in addition, unsurgical and dangerous.

The surgical methods which enable us to explore the sinus frontalis from without for diagnosis and successful treatment are, at present, so satisfactory that few surgeons attempt drainage or exploration through the intra-nasal opening. Many surgeons have long since abandoned the internal operation as uncertain and unsatisfactory and resort almost exclusively to the external one. Trephines and dental drills are preferred by some surgeons, but the simplicity and ease of the manipulation of chisel, gouge and mallet, entitle these instruments to the preference. Even if spontaneous rupture has taken place as evidenced by fistulae in or near the region of the inner canthus, the opening of the sinus should first be made and subsequently the fistulous tracts can be incised, curetted or obliterated. Because of the deep burrowing of the pus and its final discharge through a cutaneous opening, the track is under the tear-sac and careless interference may result in greater harm.

A free incision is made within, or even a little above, the eyebrow. This follows the arch of the upper bony margin and is carried to the median line on the nose and extended downwards to a point a little below the inner canthus. Frequently, in order to have an unobstructed field, a second incision is made, at right angles to the

first and over the supposed site of the sinus. The skin being held apart by retractors and the periosteum being pushed aside, with the aid of drill, or by careful chiseling, an opening is made which permits examination of the sinus. At this point, we have frequent opportunities to notice the greatest aberration so far as thickening and thinning of the bone is concerned, anomalous conditions in which individual and constitutional peculiarities play an important role.

If there are pertinent reasons for more extensive interference, for instance, if the sinus is choked with granulation-tissue, pus, or other pyogenic products, it is freely opened. The sinus being thoroughly explored and exposed, this is followed, if indicated, by an exploration of the adjacent ethmoidal cells. If no further indication of disease is found, an attempt should always be made to re-open communication with the nose through the natural channels. This is not always possible and if not easily accomplished had better be abandoned.

If no further exploration of the adjacent sinuses is deemed necessary, this terminates the operation and the subsequent treatment is like that of any other bone-cavity; packing with iodoform gauze and maintaining a free opening which subsequently is permitted to close or is closed by attempts at plastic surgery.

XI.

THE HYGIENIC AND GENERAL TREATMENT OF ATROPHIC RHINITIS.*

BY THOMAS R. FRENCH, M. D.

BROOKLYN, N. Y.

If by the word hygienic, as it applies to this subject, is meant the science which is concerned with the injurious effects of certain occupations then I should have but few words to say, for little can be done for patients with atrophic catarrh caused by the fumes of chemicals in certain trades if the occupation is continued. If the word is to be defined as that which is good for the health, the whole subject of treatment would be mine for elaboration. As, however, the consideration of the electric, mechanical and drug treatment has been assigned to others, it might be presumed that the definition intended to apply to hygienic is that which remains to be said after all is spoken, on the principle of the miracle in the parable of the loaves and the fishes. With that in mind as the possible meaning of the word in this connection, I will endeavor to enlarge the crum left over from this feast into a double proposition, namely: How to cleanse and how not to cleanse the nasal passages and naso-pharynx in atrophic rhinitis.

While there is considerable divergence of opinion regarding the etiology and pathology of atrophic rhinitis there is a general uniformity of method, differing only in detail, which is now employed the world over for the control of this disease, or by which it can be made bearable. The two main indications in the treatment of all cases of atrophic rhinitis are local cleansing and stimulation and, when fetor exists, a third indication is present; that of destroying the disagreeable odor. How best to cleanse the nasal cavities; how best to stimulate the sluggish glands and what

*Read before the Laryngological Section of the New York Academy of Medicine, March 28, 1900.

agents are best adapted to destroy the fotor, represents all that is now sought for in the local treatment of the affection under consideration.

The best results are unquestionably obtained in private practice, for the higher the patient is in the social scale the better he can, as a rule, be controlled, for the higher the degree of intelligence of the patient the greater his capacity for comprehending the need of treatment and, therefore, of responding to advice. In childhood comparatively little can be done, except with exceedingly tractable children, for enforced local treatment in childhood not only endangers the morale of the child but is not likely to be thorough. In old age we can hope for nothing better than to contribute comfort, for there is no hope of reviving the activity of the glands. It is in youth and middle age that most can be accomplished.

We all, no doubt, make use of the douche and postnasal syringe in cleansing the nasal cavities and postnasal space, and in the severe form of this disease nothing short of such means is capable of dislodging the hardened and tenacious secretions in the nose. The fairly normal nasopharynx is far from being clean, and it is difficult to conceive of anything more unclean than this locality in the fetid form of atrophic rhinitis, but the ordinary syringe as now made may fall only a little short of the nose, in this disease, in the matter of uncleanliness. From two unclean things it is as impossible to make one clean thing as it is to make a right from two wrongs. The leather plunger of the instrument is soaked in oil when the syringe is made and we have no knowledge that care is ever taken in preparing the oil, and even if care should be taken the oil would soon become rancid and form an excellent breeding ground for microorganisms. A few weeks ago I took from a drawer in the throat department of a dispensary in this city, one of a number of hard rubber post nasal syringes in use in that clinic. It had probably been used several hundred times. To the eye when taken from the drawer it looked perfectly clean. The physicians who used it invariably cleansed it by drawing an antiseptic solution into it before and after its use upon a patient. The outside of the nozzle was always washed in water which runs from the pipe in that room at a temperature of from 170 to 190

degrees F. It, therefore, received what is supposed to be sufficient care, and in a superficial way it was clean. I sent it to Dr. J. M. Van Cott, Professor of Pathology in the Long Island College Hospital, and asked him, if possible, to make cultures from scrapings from the inside of the barrel and curved tube and also from the leather plunger. Dr. Van Cott's report of the result of his bacteriologic examination of the interior of the syringe is as follows:

"After carefully sterilizing the outside of the nozzle I drew into the chamber of the syringe about two drachms of sterile bouillon, and after a few minutes returned it to the test tube. In forty-eight hours the bouillon had broken down and emitted a mildly foul odor. It was then injected into the peritoneal cavity of a guinea pig, under the usual regulations in laboratory practice, with the result that in eighteen hours the pig died. During the period between the inoculation and the death of the pig he was under constant observation and presented the typical respiratory and nervous phenomena of the septic condition. The autopsy revealed marked congestion at the point of inoculation, mild general peritoneal hyperemia with localized disseminated peritonitis and considerable clear serum in the peritoneal cavity. Cultures from the serum and the right heart blood revealed a mixed growth of organisms which morphologically were identical. There were present a short bacillus not unlike the colon bacillus and a micrococcus. The latter I am inclined to regard as the cause of the pig's demise. These findings seem to me to prove that this particular syringe contained pathologic germs capable of killing guinea pigs and other of a saprophytic nature."

For many years I have had a suspicion that rubber and metal syringes with leather plungers were not clean, and, as ordinarily constructed, could not be made clean. The hard rubber syringe cannot be boiled, as boiling water will warp the barrel and cause the leather plunger to swell, and antiseptic solutions, if strong enough to destroy microorganisms, will soon destroy the leather plunger. The revelation made by the bacteriologist in the examination just described has proven that the ordinary syringe as now made is a menace to the health of the patient, and

should never be used. May we not hope that the day is not far distant when the same condition will be required of all syringes which is now required of the hypodermic syringe; that it can be readily and perfectly cleansed? As solid metal plungers make the instrument very heavy, I have had a postnasal syringe made of thin metal and an asbestos plunger. This instrument can be boiled and is, therefore, a perfectly safe one to use if prepared by boiling.

In the milder cases of a atropic catarrh, I much prefer that the patient should make use of a coarse spray in cleansing the nose. In such cases it answers the purpose quite as well as the douche, requires less fluid to affect the purpose and is less likely to occasion mischief in the middle ear.

I may, perhaps, be permitted a word here in regard to the preparation of the atomizer for use in this disease as well as all other diseases of the nose and throat. From the workshop to those who make use of them, atomizers are subject to a considerable degree of handling. Such an instrument is not infrequently purchased, found wanting and returned to the retailer for exchange. That instrument may, therefore, be infected. Before being put in operation by the patient an atomizer should be prepared as we prepare an instrument for operation—that is by boiling—and thus place it beyond doubt. If the bottle and stem are boiled five minutes and the hand bulb and rubber tube one minute, the possibility of conveying infection is removed. Atomizers with metal stems are alone capable of being subjected to this method of cleansing.

It is not necessary, nor is it desirable, in cleansing the nose to use strong antiseptic solutions. The olfactory filaments are affected sooner or later in all cases of atrophic catarrh, unless the disease is arrested, but the loss of function is only hastened by the employment of antiseptic solution, in cleansing the nasal cavities. Alkaline solutions are better borne, more serviceable and less harmful.

Next to cleansing I presume that the treatment most commonly employed, both by the patient at his home and by the physician at his office, in this disease, is in the use of some medicated oily preparation injected into the nose

and fauces by means of the atomizer. Such oily solutions unquestionably give vast comfort to the patient, but unfortunately prolonged and uninterrupted use of them is apt to hasten the course of the disease. First, because they aid in destroying the activity of the secreting glands by preventing proper evaporation, second, because they tend to choke and block the mouths of the glands themselves, and third, because they prevent, to some degree, the serum of the blood from reaching the current of air. By keeping the mucous membrane covered with an oil simply lubricates it, affecting only the comfort of the patient for the time being but it is in no sense curative. Oils should, therefore, as a rule, be used sparingly and intermittently and should be applied only after thorough cleansing of the nose with a saline wash and that saline wash should be used before and after a spray of peroxid of hydrogen. This may be regarded as a cumbersome method of treatment for the patient, but it is, I believe, the ideal method in most cases. The use of oils may be omitted for several days at a time, in some cases, with beneficial results. It is difficult to sterilize an oil except by boiling, for microorganisms thrive in air bubbles and escape destruction by the antiseptic agent incorporated in the oil. In answer to a question regarding the effect of boiling various drugs in oil, the Benzoinal Company made a test and find that iodine, iodoform and aristol are decomposed by boiling, that carbolic acid, creosote, eucalyptol, menthol, camphor, thymol, salol and the oils of cubebs, pine needles and wintergreen are evaporated by repeated boiling. It is probable that very little evaporation occurs if the oil is boiled but once.

And now a word regarding the constitutional treatment of atrophic catarrh. Under this head may properly be mentioned the antitoxin treatment, for while it is used for its local effect it acts by its effect upon the blood. This treatment was suggested by Belfanti and della Vedova in 1896 because of the belief that the bacillus found in secretions from atrophic rhinitis were an attenuated form of the diphtheritic bacillus. This method of treatment has had many strong advocates, but it has been abandoned by some of the foremost among them and we have no encouraging statements upon which to base a belief in its efficacy. In

a letter received from Mygind of Copenhagen a few days ago he states, regarding the antitoxin treatment in atrophic rhinitis, that he considers it the most effective method we possess but it has so many drawbacks that for the present, at least, he has been obliged to abandon it.

It is safe to say that one fifth of the subjects of this disease are not in good health and, therefore, require constitutional treatment. When this affection is dependent upon a constitutional dyscrasia, such as tuberculosis or anemia or upon an inherited taint, local treatment, while very necessary, should occupy a secondary position, for its action will be but transient unless the constitutional condition is combatted with every reasonable means for increasing body nourishment. The immediate effect of a change of climate upon the nasal symptoms is more marked at the sea-shore than inland, but it does not follow that a residence at the sea-shore will in the long run be more beneficial, especially if the dyscrasia is of a tuberculous character. A climate adapted to the constitutional condition is more important than one which agrees best with the local pathologic condition. The prolonged administration of various tonics such as iron, iodine, arsenic and cod liver oil will often be needed. In this class of cases I have, at times, employed inunctions of the various oils with most satisfactory results.

The subjects of atrophic catarrh, because of their susceptibility to acute inflammatory disorders of the mucous membrane of the upper respiratory tract, should live much out of doors and take baths in cold water followed by frictions. They should, of course, be properly clad in suitable undergarments, but now that the material known as linen mesh is obtainable it does not follow that wool should be recommended. Those with whom I have spoken who wear this material for underwear seem less liable to cold catching than when they wore wool, probably because of the peculiar drying quality of the goods. The main, and so far as I know the only, disadvantage it has is its high price.

While atrophic rhinitis is often spoken of as the bane of rhinologic practice we, nevertheless, have reason to congratulate ourselves upon the advance made in the method of treatment in the past fifteen or twenty years. In former times the subjects of the fetid form of this affection were practically ostracised from society; their very presence was a pollution. To-day if they cannot always be cured the fetid character of the secretions can be so controlled that the subjects of the disease may pass unnoticed by others.

XII.

A CASE OF RHINOSCLEROMA, OCCURRING IN A RUSSIAN IN THE UNITED STATES.*

BY WALTER J. FREEMAN, M. D.,

PHILADELPHIA.

I am glad to have the opportunity of showing you to-day a case of rhinoscleroma, a disease rarely seen in this country and never in a native of the United States. It is found chiefly among the lower classes of Russia and Austria, and the patients found elsewhere can usually be traced to these countries. In Central America, however, up to 1895, twenty-three cases were reported, most of them occurring in natives of the country. Sporadic cases have also been found in Switzerland, Italy, India, Egypt and South America, and several cases (all foreigners) have been reported in England and France. Previous to the present patient, who has never been examined before and is consequently not a "repeater" only about half a dozen cases have been reported in North America. Juffinger, in his comprehensive treatise upon the disease, notes fifty-three cases in Austria and twenty-one in Russia; while Mackenzie, in 1880, mentions forty cases reported up to that time. Thus in spite of the wider attention drawn to it, Juffinger, in a period of twelve years, could only double the number of cases reported, and I have no doubt many of these were reported several times as they traveled around from place to place seeking relief.

The disease was first described by Hebra, in 1870, and, as he found its usual seat to be the integument surrounding the openings of the nose, and as it was a sclerosing process, he gave it the name of "rhinoscleroma." He considered it primarily a skin affection, and even as late

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as 1893, Buckley, in Burnett's "System," classified it among the skin diseases of the nose. It frequently, however, takes its starting point from the interior of the respiratory tract, even as far down as the trachea, and for this reason, the name "rhinoscleroma" is not, perhaps, scientifically exact. The name "scleroma" has been proposed and frequently used, but we already have the word "scleroma" in dermatology, and I think the use of terms so closely resembling each other would be unnecessarily confusing. In certain cases it might be better to adopt the German method and speak of "rhinoscleroma," "pharyngoscleroma" and "laryngoscleroma," according to its location, but the term "rhinoscleroma" has become so identified with it, and expresses its usual point of invasion so clearly, that, in my opinion, it is best to adhere to it.

While Cornil first discovered encapsulated bacilli in the tissue, Frisch, in 1882, was the first to recognize the presence of bacilli within the cells, and they are now generally looked upon as the cause of the disease, and their presence in the cells considered diagnostic. Stephanow even claims to have reproduced the disease in animals by inoculation. Certain spheroidal cells, first recognized by Mikulicz, which have undergone colloid change and lost their nuclei, are of great diagnostic importance. Rindfleisch has also described this peculiar cell-metamorphosis, whereby the exudate cells increase greatly in size, lose their granular appearance and finally cease to take a nuclear stain. Though they are also found at times in polyp and adenoid tissue, their presence in a sclerosing process constitutes a distinctive pathologic product of the disease. Although the bacilli may be found in any part of the tissue and in the secretions, they are more abundant in the recently affected parts, and especially in the Mikulicz cell which they sometimes fill to bursting. The bacillus closely resembles the pneumo-bacillus described by Friedländer and also that of Löwenberg found in ozena, and, while Paltauf does not consider them identical, he regards them as nearly related. It is a short, thick bacillus, usually encapsulated, and, though it looks like the Friedländer bacillus, it takes the Gram stain, which the latter does not, and also acts differently in certain culture media. That its action in animals is less virulent than that of the pneumo-bacillus is not, I think, of

much practical importance. Alvarez made the curious discovery that the fermentation of the indigofera plant was produced by a bacillus closely resembling that of rhinoscleroma, and he was even able to reproduce the fermentation by the Frisch bacillus. While the disease is apparently confined to the "great unwashed," its occurrence in two brothers in Switzerland at the same time is interesting as suggesting the possibility of its being contagious. Though it has been seen in a person as young as fourteen years, it is usually confined to vigorous adult life.

Beginning with a round-cell infiltration, the cells later become spindle shape, and finally organize into connective tissue and undergo sclerosis. The surrounding parts are slowly involved and marked contraction follows the course of the disease. When it attacks the mucous membrane, there may be considerable tumefaction of the mucosa or merely a general flat induration, in which case it is in the submucous layer. In the skin, it takes the form of a general infiltration or of nodules or plaques covered with normal epithelium. Stephanow, in a post-mortem, found that the disease showed a predilection for the narrower parts of the nose, throat and larynx, and especially those parts where the pavement epithelium passed into the ciliated variety; thus the disease usually made its first appearance at the entrance of the nose, or at the choanae, or below the cords. He claims that it does not spread by continuity of tissue, but that each part is attacked separately. It seems, however, that while in certain cases this is correct, one can plainly see in others that the disease progresses from one part to another by simple extension.

The tissues involved present a hard, almost ivory-like consistency. Indeed, Kaposi found cartilage and Chiari even traces of ossification in some of their cases. At the beginning, however, the parts have a soft, often velvety, feel, are smooth and shining, and may be normal or slightly reddish in color. Blood vessels are usually seen radiating from the masses, and they later undergo change and appear as white, scarlike rays.

Beginning at the anterior nares, the disease may spread to the lips and, involving the mouth, reach to the soft palate and fauces. Or it may extend over the face and attack the eyelids producing marked contraction. At

the same time, it progresses into the interior of the nose, involving the turbinals and spreading onward to the rhino-pharynx, where the mouths of the Eustachian tubes are included in the scarring process. When the soft palate becomes involved, the rhino-pharynx may be shut off from view or even closed entirely, and the uvula disappears entirely or is drawn upward into the vault, and looks as if destroyed by ulceration. While ulcerations are seen on rare occasions, it is only when the disease takes the tumor form, and then they are very superficial and heal quickly. Even after operations, which are characterized by free bleeding, the wounds heal quickly without appreciable scarring. Fissures and cracks in the folds of skin and mucous membrane are more common, and as they become covered with crusts from the drying exudate, they often give the appearance of ulcerations. At present times the tongue is drawn up by contraction of the pillars and tissues of the fauces and it is difficult or even utterly impossible to examine the throat. Indeed we may have ankylosis of the jaws produced by the extensive contraction. When the larynx is affected, the subglottic swelling is more marked than in any other form of hypertrophic laryngitis, and it is now asserted that Störck's blenorrhœa is really nothing more than rhinoscleroma. The secretion is very tough, forms crusts and produces very severe cough, and dyspnea, which may terminate fatally.

The disease seems to be preceded by a chronic catarrh of the parts somewhat resembling atrophy. As it progresses through the nasal fossae, it leaves a track of scar tissue and on this are deposited crusts which give rise to a fetid odor. Juffinger has described the odor as eminently characteristic, and claims to be able to diagnose the disease by this symptom alone. It is noticeable even when it occurs in the larynx, and is present in our patient, though his is only the nasal form. I would especially ask you to notice the difference between this and the odor in ozena.

Although its painlessness, hardness, and slow growth are valuable points in diagnosis, it is not easy at all stages to distinguish this disease from tuberculosis, syphilis, sarcoma, lupus, leprosy, keloid and epithelioma. In the stage where there is nodular thickening of the skin, it may

closely resemble the tubercles in true tuberculosis, but there is more tendency to break down into ulceration in the tubercular disease, and bacteriologic examination will also help to clear up the diagnosis. To distinguish it from syphilis at certain stages without microscopic examination is more difficult, and for a long time it was considered one of the many manifestations of that disease. The symmetrical occurrence is common in rhinoscleroma, whereas in the tertiary form of syphilis this is rare. We have in rhinoscleroma a process in which there is no loss of substance and in which there are usually found the stages of infiltration, tumor formation, scarring and contraction going on in the neighboring parts at the same time. There is also absence of pain, as ulcerative processes are most uncommon, the lymphatic glands are not involved, and the induration is movable. Also, unlike syphilis, it progresses slowly and constitutional treatment has hitherto proved of little avail. The primary cellular infiltration may render it difficult to distinguish it from the round-cell sarcoma, but the presence of the scleroma bacillus and the characteristic cells will prevent mistake. From lupus and leprosy it can usually be distinguished by recalling the features of the disease already given. The microscopic examination will settle the diagnosis in doubtful cases. While the appearance resembles that of keloid, the favorite seat of the latter on the chest and the lobe of the ears is of diagnostic importance. Its progress and history as well as the microscopic examination will enable one to make a positive diagnosis. From epithelioma it may be distinguished by its freedom from bleeding and ulceration, and its smooth shiny surface, also by its tendency to contract and by the sluggishness of its growth.

The symptoms necessarily depend entirely on the course of the disease and the parts involved. It is not dangerous to life except as it involves the throat and lower respiratory passages. Sight, hearing, and nasal respiration may all be impaired and yet the patient suffer no pain. Difficulty in swallowing, hoarseness and cough are distressing when the throat or larynx are involved.

So far no specific remedy has been discovered, though the iodids, mercury, tuberculin and arsenic have all been given a thorough trial. Caustics and antiseptics have

also proved unavailing. The disease has a limited course and ceases if left to itself, but its course may be very long, twenty years or more, and is accompanied by much serious contraction and obstruction of important passages. Pawlowski, of Kiew, has seemingly obtained relief in several cases by the injection of the rhinosclerine extract obtained from the culture of the scleroma bacillus. As these injections are accompanied by fever and by swelling of the affected parts, he claims this procedure is also of diagnostic value. Injections of arsenic have been tried by many with varied results, some claiming great benefit and others asserting that it was useless. It is a tedious as well as a painful method, and few will submit to it for a sufficient length of time. Then, too, it cannot be carried out in all cases on account of the inaccessibility of the part affected. Salicylate of soda by injection and local application has seemed to benefit a patient of Lang's, and Bosworth reports a case treated by Doutrelpont where the disease was cured by applications of a 1% ointment of corrosive sublimate in lanoline. Some justifiable doubts are expressed whether this was not really a case of syphilis. The removal of the nodules does not prevent their return, but on the other hand does not increase the activity of the growth. Laryngotomy has repeatedly been done on the same patient at long intervals and the recurring growths removed, often with many years of comfort in between. Indeed, the hypertrophic tissue *must* be removed when it interferes with breathing. Péan reports a case in which he thoroughly removed all the diseased structures and cauterized any part where there was a tendency to return and in this radical way the disease was completely cured. When the disease affects the nose or larynx, more or less permanent relief may be obtained by dilation, for the pressure causes absorption of the indurations. It has been found that streptococcus of erysipelas is antagonistic to that of rhinoscleroma, so that the simultaneous injection of both into an animal is without result. It has been suggested on this account to make use of the antitoxin of erysipelas to combat the disease. For the crusts which occur in the larynx, producing severe cough and dyspnea, Schrötter recommends steam inhalations of a stimulating character. His tubes seem better adapted

for dilating the contractions in the larynx and I have used them in Vienna with seeming great relief to the patient. After the tube is introduced, the patient remains for half an hour or more holding it in place, and it is astonishing to see how well it is borne. Schmidt has reported a case in which the disease disappeared after an attack of typhoid.

The case before you is a man, whom I first saw in January of this year. He is thirty-four years of age and a native of Russia, and has been in this country for the past seven years. He first noticed trouble with his nose three years ago, and came to us at the Polyclinic Dispensary only because his nose was obstructed. He has had some greenish discharges from both nares and considerable dryness, but complains of no other symptoms. He has had no headache, no cough, no ear trouble and his general health is excellent. The examination showed both vestibules contracted and blocked by a fibrous growth of great density, which rendered the parts peculiarly stiff and unyielding. Only the merest traces of apertures into the nose remained and the septum seemed greatly twisted and deformed. In the right vestibule was a pedunculated fibroma, which was removed for microscopic examination. Its removal gave considerable comfort to the patient, as it increased the breath space to about 1/16 of an inch. His uvula was congested and relaxed, and the post-pharyngeal wall was covered with inspissated mucus, whether as a result of the mouth breathing or from the usual forerunning catarrh I could not determine. The choanae were about half the normal size, showing that the process had extended to the rhino-pharynx. The lingual tonsil was large and red and the cords rough and hyperaemic. The trachea was coated with dark inspissated secretion. The odor from the case was curiously penetrating and unlike that of ozena, having a rather sickening, sweetish character. The piece removed was handed to Dr. Thos. S. Kirkbride, Jr., with the suggestion that it was probably a case of rhinoscleroma. His report confirmed my suspicions, in that he found numbers of bacilli of rhinoscleroma in addition to the usual histological elements characteristic of the disease.

XIII.

A CASE OF MASTOID DISEASE, WITH NECROSIS AND SEQUESTRUM OF THE PETROUS PORTION OF THE TEMPORAL BONE.

OPERATION.—RECOVERY.

BY HAROLD WILSON, M. D.,

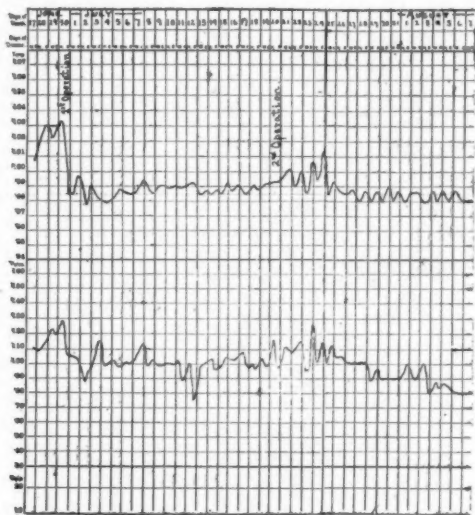
DETROIT, MICH.

The following case presents some features both unusual and interesting:

Edith R. aet. 20, consulted me Oct. 6, 1896 for a chronic otorrhea affecting the right ear and dating a year or so back, which treatment up to that time had failed to relieve. My records of the case at this time are imperfect, but from the history and condition of the case, I advised her to submit to a radical operation. This she refused, and ceased her visits. About three years latter, June 27, 1899, she was admitted to the Grace Hospital in the service of Dr. D. A. McLachlan, suffering from severe pain in and about the right ear, which was discharging profuse quantities of an offensive pus. The tissues over the mastoid and down the neck were swollen and tender, and there was a fluctuating swelling in front of the sternomastoid muscle, about two inches below the mastoid tip. There was marked right-sided facial paralysis. Temperature was 100.8° rapidly rising, (see chart), pulse 110. The patient gave a history of having had a continual otorrhea for three or four years, with occasional acute attacks of mastoid pain and tenderness. The facial paralysis had also existed during nearly this entire time. Her general health had been otherwise good. Her family history was bad. Her father died from dropsy; mother from tuberculosis, and one sister from cancer.

On the evening of July 19th, the patient came under my care. An examination of the patient and her chart showed that an operation had been made June 30th, by

the surgeon then in charge, consisting of an incision over the mastoid and down along the anterior border of the sterno-mastoid muscle, about three-quarters of an inch behind the auricle, and extending about $2\frac{1}{2}$ inches above, and the same distance below the mastoid tip, evacuating the abscess in the neck. With a conical drill, a shallow, superficial excavation had been made upon the surface of the mastoid cortex, one-eighth to one-sixteenth of an inch in depth, at a point about on a level with the



center of the auditory meatus, and about one and three-eighths of an inch behind it. The abscess of the neck was discharging through the open wound along the border of the sterno-mastoid muscle about 2 in. below the mastoid tip. There was a profuse offensive discharge from the middle ear through the meatus, and examination showed a large granulating or polypoid mass filling the bottom of the canal.

The following day, July 20th, the patient was anaesthetized, and assisted by Drs. C. F. Sterling and E. Amberg, and the house-staff of the hospital, I made the following operation:

After cleansing and shaving the mastoid and peri-

mastoid area, an incision was made about three-eighths of an inch posterior to the line of the base of the auricle and parallel with it, from a point somewhat above the auricle, to the mastoid tip. Pushing back the periosteum, the posterior wall of the bony canal and the mastoid cortex lying over the antrum were removed by means of chisel and gouge, the bone being very dense and difficult to chip away. After the antrum had been reached, a considerable portion of the entire mastoid cortex was removed, forming a large conical opening in the bone. The antrum was small and rather obscure, and no accumulations of pus were found elsewhere in the mastoid. Upon examining the site of the middle ear, it was found to be filled with a large, firm, movable body, the surface of which was covered with granulations and bathed in pus. All attempts to remove this body with forceps or curette, using as much force as was deemed safe, failed, apparently because it was too large to be withdrawn through the bony wound. It was then grasped with strong forceps having long slender jaws, and after several efforts, crushed into several fragments. These were removed with comparative ease, and after being cleansed, *were found to make up practically the entire labyrinthine portion of the temporal bone.* The accompanying illustration shows the fragments that were secured, one of considerable size having fallen upon the floor during the operation was crushed under foot. The cavity left after the removal of the sequestrum, was very large, measuring $1\frac{5}{8}$ in. from the posterior border of the bony wound inward and forward, and about $1\frac{1}{2}$ — $\frac{5}{8}$ in. in height and depth medialward. I could not determine with certainty whether the inner walls of the cavity were bony or membranous, since they were covered with granulations which it seemed very unwise to disturb with a probe or curette. It was therefore gently irrigated with 1/5000 sublimate solution, dusted with iodoform-boracic acid powder and packed lightly with gauze. The external wound was then dressed in the same fashion. The cartilaginous portion of the external auditory canal was not split, nor stitched, ample drainage and access to the wound cavity being afforded without this procedure.

Following the operation, the patient entered upon a normal and uninterrupted recovery. The abscess in the

neck, which had heretofore discharged continuously, ceased doing so at once, and at this writing, (January 18th, 1900) the operative wound has healed and there is no discharge from the ear. A small passage, about $\frac{3}{32}$ in. in diameter, the walls of which are apparently covered with epithelium, leads to the healed internal cavity from a point about $\frac{3}{8}$ in. back of the auricle and on a level with the upper wall of the external auditory canal.

Remarks. I have neither the opportunity nor leisure to make an exhaustive search of aural literature to determine how frequently cases of this kind have been reported, but believe them to be uncommon. It is rather surprising that in this case there should have been no cerebral infection, since the suppurating mass in the ear must have been separated from the brain by a very thin partition wall. If the protective granulations filling the cavity from which the sequestrum was removed had been broken down by the curette or by other forcible means, it seems to me that such infection would certainly have followed the operation. The operation to which the patient submitted previous to coming under my care evidently relieved some of the septic conditions (probably arising from the abscess in the neck), but obviously fell short of fulfilling the existing surgical indications. The facial paralysis has naturally not been affected by the operation or the subsidence of the otorrhea, since a large part of the Fallopian canal was included in the sequestrum so that the enclosed nerve was destroyed. I am unable to affirm with certainty by what route pus passed from the necrotic cavity into the tissues of the neck, but it seems very probable that it may have done so through the Fallopian canal. The temperature chart may be of some interest, as also the photograph of the fragments of the sequestrum, for which I am indebted to Dr. P. M. Hickey.

XIV.

PYOGENIC INFLAMMATION OF THE MASTOID, AND ITS RATIONAL TREATMENT.*

BY. J. H. WOODWARD, B. S., M. D.,

NEW YORK CITY.

Pyogenic disease of the mastoid antrum and cells always occurs in conjunction with suppurative inflammation in the tympanum. It may be either an acute or a chronic process. And both the acute and chronic types may present the characteristics of a relapsing inflammation. I suspect that it is a habit with most of us to regard suppurative disease of the middle ear as especially an affection of the tympanum, which at times is complicated by involvement of the mastoid antrum and cells in the same inflammatory process. To my mind, it is inconceivable that either an acute or a chronic inflammation, whether pyogenic or not, should be limited to the drum. It is not to be supposed that the tympanum may be invaded by a suppurative inflammation, while the antrum, lying adjacent, and having the same vascular supply and the same innervation, and a lining membrane of the same nature, escapes unscathed. I am convinced that the mastoid antrum is involved in every important suppuration in the tympanum, and that the mastoid cells are much more commonly invaded than we are accustomed to believe. *V* priori reasoning indicates that these considerations ought to be true. A *posteriori* demonstration has proved that they were true in the cases that I have been permitted to observe. The more intense the invasion of the drum, the more intense will be the involvement of the antrum and the cells. Important encroachments upon the integrity of the antrum may be expected in every purulent invasion of the tympanum, occurring in cases of scarlet fever, diphtheria and influenza.

*Read before the New York Medical Union, April 24th, 1900.

The tendency to await the development of so-called positive symptoms before concluding that the structures of the mastoid process have been attacked, is inherent in all of us. Those who are familiar with these cases, however, must agree that pyogenic disease in the mastoid antrum of a dangerous type is not always accompanied by either subjective or objective signs that would necessarily attract the attention of even an expert general practitioner. No other testimony as to the insidious nature of some of these cases is required than that of the unexpected occurrence of fatal intra-cranial complications in middle ear suppurations. Even in the common cases of subperiosteal mastoid abscess, it is evident that the disease in the antrum must have antedated the external appearance of the pyogenic infection by a measurable period. A considerable number of cases of acute purulent otitis media terminate in a state of chronic otorrhea; and a certain percentage have a relapsing tendency. In contrast with these various types that pursue an unfavorable course, we are able to cite examples of acute purulent otitis media in which complete and permanent recovery has taken place. It is my impression that complete and permanent recovery of an important acute purulent otitis media does not occur very often, unless more radical means have been adopted than those pertaining to the commonly advised local treatment. Whether this impression be true or false, it is evident, nevertheless, that in a considerable number of acute cases we have been puzzled, hitherto, in our endeavors to choose the proper time for resorting to radical operative interference. It is also true that we have not appreciated the importance of performing that operation upon the majority of our cases of chronic purulent middle ear disease.

You will pardon me, I am sure, for dwelling upon this phase of the subject, especially when you reflect that upon the answer to the question "when shall we operate in purulent otitis media?" depends the prophylaxis of those formidable intra-cranial and intra-venous invasions of otitic origin, which have engaged our attention so frequently in recent times.

Every one who has operated early in acute cases must have been surprised to find that the infection had extended so deeply in the short period of its existence. Every one

who has critically examined the chambers of the ear in the various stages of chronic purulent otitis media must be convinced of two things: (1) The doubtful probability that advanced disease may be controlled by treatment through the external auditory canal; and (2) The eminent desirability of a permanent eradication of the infective inflammation.

Otorrhea should be regarded as the most potent and persistent sign of pyogenic infection of the chambers of the middle ear. Experience demonstrates that if we wish to prevent the spread of infection from the middle ear, the conditions upon which the otorrhea depends must be removed. After extension of the infection has occurred, it is generally agreed that operative interference should be undertaken. Also, when swelling with fluctuation develops behind the auricle, no physician would object to an operation. But, in the absence of those reasons for operating, which even the uninstructed are able to appreciate, it is customary to recommend palliative measures, rather than resort to means which will remove permanently the foci of infection. Although in a certain limited number of cases, simple means will succeed, it is not good judgment, nevertheless, to favor a prolonged trial of non-operative treatment which is not yielding palpable results.

In a paper which I read before the New York County Medical Association recently, I discussed seven objective conditions that are as readily discoverable by the general practitioner as by the otologist, which are trustworthy indications for early radical operative interference in the management of otorrhoea.

They are as follows:

- (1.) Bulging of Shrapnell's membrane, with swelling at the inner extremity of the external auditory canal.
- (2.) Persistent tenderness over the mastoid process.
- (3.) Swelling of the soft parts over the mastoid process.
- (4.) Granulations and fistulæ in the auditory canal external to the membrana tympani.
- (5.) Persistent and relapsing fistulæ behind the auricle.
- (6.) Persistent, and especially offensive otorrhea.
- (7.) Sudden marked diminution, or absolute cessation of a chronic otorrhea.

I will add one other, which is partly objective and partly subjective, namely: (8.) Chills, and a septic temperature, preceded, or accompanied by severe pain in the mastoid process, or its vicinity.

I shall limit myself, at this time, to a brief commentary upon three of these propositions.

(a.) Whenever, in purulent otitis media Shrapnell's membrane bulges into the auditory canal, and especially if swelling at the inner extremity of that canal be associated with it, we may assume that the mastoid antrum is seriously involved, and that the radical operation will probably be necessary to the patient's recovery. It is generally agreed that a free incision should be made through the drum-head in every case. Too great faith may be based upon that treatment. The pus is always thick and tenacious, and it may not flow readily even through a large aperture. Retention of pus in the ear cannot be regarded too seriously; and, whenever incision of the drum-head fails to establish efficient drainage, it is more prudent to open the mastoid antrum at once, rather than subject the patient to the dangers of delay. Those dangers are especially great in diphtheria, scarlet fever and influenza.

(b.) The mastoid antrum should be opened in suppuration of the ear, whenever swelling of the tissues over the mastoid process is observed. In a certain percentage of cases, incision and drainage of the superficial abscess are followed by recovery. This fact makes it less easy to convince an important body of general practitioners that it is not sufficiently effective. Ten years ago, I was willing to treat certain cases in that way. Some of the patients were restored to health after a longer or shorter period; but, in a number of them, the radical operation had to be performed before the patient could recover. Among those cases of imperfect primary operation was one in which the sequel was disastrous; for my patient developed a cerebellar abscess from which he perished. The intra-cranial complication did not arise until nearly two years after the first operation; but it is certain that if a radical operation had been done in the beginning, he would not have died as he did.

Mastoid abscesses are a consequence of infection spreading from the antrum and cells. In order that the infec-

tious agent may reach the periosteum, the intervening bone need not be carious; for it may pass to the exterior by way of the veins and pores in the bone, and by the masto-squamous suture. When an aperture through the external table of the mastoid is found, it should never be assumed that that will prove sufficient. And when the external table appears to be in good condition, it should never be imagined that a thorough operation may be safely omitted.

Swelling of the soft parts over the mastoid process is also an indication for early operation. Such swelling may be dissipated in certain instances, by non-operative means, but it is not probable that the infective agent may be driven from the field in that way. It is especially important that the radical operation be made early in cases of chronic suppuration of the ear with swelling over the mastoid. Subsidence of the swelling in such cases can never signify that an adequate impression has been made upon the disease, unless the improvements have been brought about by measures that are distinctly more effective than the usual local treatment.

Sudden diminution or absolute cessation of a chronic otorrhea and the occurrence of chills associated with a septic temperature, which has been preceded or is accompanied by severe pain in the mastoid region, are symptoms of great significance. They should be regarded as signals that the disease is about to attack a more vulnerable part, or that systemic infection has already taken place. Operative interference should not be delayed; and, in such cases, the sigmoid sinus ought always to be explored.

It is evident that my conception of a rational treatment for pyogenic inflammation of the antrum and cells of the mastoid is a thorough exposure of those cavities and a complete removal of the diseased structures by operation. It is admitted that some cases will and do recover without this interference. I believe that they comprise a minority of the moderately severe cases only. Even for them, it may be maintained with considerable reason that the shortest, the safest, and the surest way to a cure is by the mastoid operation.

You will permit me to remind you, I trust, that the ob-

ject of the radical mastoid operation is not to drain the chambers of the middle ear, as some physicians would fain imagine. The object of the operation is to remove the disease! You would not expect to cure an endometritis or a carious focus in one of the long bones by drainage alone. Much less should any one presume to suppose that pyogenic disease of the middle ear, which combines the characteristics of both those affections, may be eradicated by operative means that are less radical than those which all are agreed should be employed in the cure of them. The pathologic process must be pursued into every recess that it has invaded. The antrum and the cells of the mastoid must be exposed in every instance as a routine procedure. This may be done with safety if we follow the anatomic lines laid down by Macewen, in his classic treatise on the "Pyogenic Diseases of the Brain and Spinal Cord," and in his "Atlas of Head Sections."

The dangers of mastoid operation have been grossly exaggerated. Irregularities in the anatomy of that region have been supposed to be common enough to endanger the patient's life during the operation, or the integrity of the important closely adjacent parts. That supposition is a purely fanciful one! It is true that the operator may wander from the course which he should follow, but it is futile to ascribe the error to an alleged anatomic peculiarity of the patient. Moreover, throughout the entire management of the case, until healing is absolutely complete, the most rigid antiseptic precautions are essential. It is very difficult to establish an antiseptic state of the invaded region in pyogenic disease of the middle ear. And, for that reason, I think one ought to be even absurdly particular in attempting to disinfect every part to which the infective germs may have penetrated. Such efforts should not be relaxed until the wound has healed perfectly, and there is no discharge from the ear.

It is necessary to attack the disease in the tympanum, as well as in the antrum and cells. Not only should we cut away all diseased mucous membrane and carious bone in the antrum and cells of the mastoid process; but we ought also to curette very thoroughly the lining of the tympanum; and the malleus and the incus should be removed whenever they are in a state of caries. Sufficient

bone must be cut away to give the operator an opportunity to ascertain the precise condition of the various parts to be examined. In this manner only may we succeed in doing justice to these cases. Objections may be raised that such radical invasion of the middle ear will prove disastrous to its function. So far as may be compatible with the well-being of the patient, I agree that the integrity of the ear should be conserved. But the handling which is here advised for the tympanum, however rough it may appear to be, does not necessarily injure the hearing. Furthermore, whenever the ossicles are so diseased that they must be removed, we shall find that the function of the ear had been destroyed some time before the operation was undertaken. I have curetted the tympanum in every case upon which I have performed the mastoid operation, during the past six or seven years, comprising in all a considerable number of such operations. And I have demonstrated to my own satisfaction, at least, that the most thorough use of the curette in the chambers of the middle ear is not incompatible, in these cases, with the preservation of acute hearing. I give the following history of a case upon which I performed that operation twice within the year, to illustrate this contention.

Henry W., 14 years of age, was seen in consultation with Dr. R. N. Disbrow, on Feb. 21st, 1899. During the two years preceding, he had had recurrent attacks of supuration in his left ear. The discharge had ceased each time after a little, and had never been accompanied by much pain. On Feb. 12th, the discharge recurred again, and the ear was painful. On the 19th, he consulted his physician. On the 20th, he had a chill, and his temperature rose to 104. I saw him in the afternoon of the next day. There was some purulent discharge from the left ear; the external auditory canal was free; there was a small perforation of the drum-head, and marked bulging of Shrapnell's membrane. There was no swelling over the mastoid process, nor was there tenderness, excepting over the knee of the sigmoid sinus. The internal jugular was not involved. Mental hebetude and photophobia were well marked. The patient was chloroformed, and I made a free incision through the membrana tympani, but did not evacuate much pus. After the incision, there was a

transient, well-marked spasm of the left side of his face, especially about the lips. On Feb. 22nd, assisted by Drs. Disbrow and Booth, and Dr. E. M. Alger, I opened the mastoid antrum, which contained pus and fungous granulations. The tympanum was thoroughly curetted. While curetting the aditus, twitching of the left side of the face was noted once. Following up the disease, I opened the sigmoid groove at the knee, and evacuated about two drachms of foul-smelling pus.

Ophthalmic examination immediately prior to the operation showed the media clear and the fundus normal in each eye.

I did not see this patient again until Oct. 27th, 1899, when his father brought him to my office, having already visited the Eye and Ear Infirmary, where he had been told that another operation was necessary. I found the ear discharging pus; and there was a fistulous opening at the upper end of the mastoid scar leading down to the antrum. The wound had never healed.

On Oct. 30th, at the Metropolitan Throat Hospital, assisted by Dr. C. J. Strong and Dr. John Drew, and in the presence of Dr. E. M. Alger and others, I operated upon this patient again. The antrum was full of granulation tissue and cholesteatomatous masses. The tympanum was in a similar condition. Every vestige of disease was cleared away, and, in order to accomplish that end, the tympanum and the antrum were thoroughly curetted. The only invasion of bone discovered was a small spot of caries in the lower portion of the mastoid process.

On Nov. 2nd, I redressed the wound, and removed a large adenoid from his throat. On Dec. 2nd, all dressings were permanently removed. There was a large polypus projecting from an aperture in the drum-head. By Dec. 6th, the last vestige of the polypus had been destroyed. About Dec. 29th, he was discharged cured. There had been no discharge from the ear since the polypus had been exterminated. The hearing in his left ear, the tympanum of which had been curetted twice within a twelve-month, was normal, or, for my watch 30/30.

In conclusion I must remind you of the importance of certain affections of the nose and throat as predisposing causes of purulent otitis media, their influence in exciting

relapses, and their potency in prolonging a chronic otorrhea, notwithstanding the local treatment almost universally advised. Indeed, I am not sure that relapses even after the most radical and painstaking mastoid operation would not occur, if those conditions in the upper respiratory tract were not removed. In the first place, we must recognize the importance of lymphoid hyperplasia in the naso-pharynx as a predisposing cause of acute and relapsing purulent otitis media. Attention has been directed to this matter by numerous writers; but the lesson has not been learned, even by many who are pretentious of being known as specialists in Otology. Among close observers, there can be no doubt that, in patients under fifteen years of age, an adenoid exists in almost every case of suppuration of the ear. To have any etiologic bearing, however, it must promote a chronic congestion of the naso-pharynx. But, in order to serve that purpose, the growth need not be very large, although the greater the adenoid, the more likely will it be to cause trouble in the ears.

Associated with adenoid growths, we commonly encounter an hypertrophy of the faucial tonsils. At the same time, an hypertrophic rhinitis, in which chronic dilation of the submucous veins of the inferior turbinal body plays the chief role, is the prevailing obstruction in the nasal passages. Posterior turbinal hypertrophies likewise obstruct respiration through the nose, and they too should be enumerated among the causes predisposing to purulent otitis media. Rectification of these abnormal states of the nose and throat is indispensable to the successful treatment of the conditions to which I have directed your attention to-night.

58 West 40th Street.

XV.

SOME OBSERVATIONS ON THE PROGNOSIS AND
TREATMENT IN THE SO-CALLED CATARRHAL
DEAFNESS.*

BY DUNBAR ROY, A. B. M. D.

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SOCIETY, etc.

It seems superfluous in me to try to discuss the subject of deafness when our medical journals and programs of annual and monthly meetings teem with so many aural dissertations. And on the other hand I must confess that I bring before you no startling discovery nor miraculous cure, nor will I even present any rare pathologic specimen. My only excuse for trespassing upon your time with such an hackneyed subject is purely from the fact that my clinical experience has impressed upon me certain truths which cannot always be found in textbooks and which have not been given that degree of prominence which they deserve. There is probably no portion of medicine which opens up a broader or more inviting field to the quack and charlatan than is embraced under the dual word "catarrhal deafness." Deaf people are like drowning men, and a straw to such is always filled with restoring grace.

Barnum never uttered a greater truth than when he said "the American people like to be humbugged," and I have often thought that he must have had in his mind deaf American people.

Deafness is a general term and but signifies a specific condition of the aural apparatus without designating the particular portion of the apparatus which is involved. Certain pathologic conditions existing in any of the three divisions of the ear—external, middle and internal—will

* Read before the Georgia Medical Association, Apr. 20th, 1900.

produce deafness and the question of diagnosis and consequent prognosis rests upon which portion is involved.

Routine or problematical treatment of any pathologic condition should not be a habit possessed by any scientific physician. Because text-books lay down certain treatments in certain diseases is no reason why the physician should always follow such teachings. Cause and effect are closely correlated and the successful physician is he who studies closely the relationship of every accompanying sign and symptom. You may look around and note the successful consultant and you will find a man who studies minutely every case just as if he had never seen a similar one before. This principle, enunciated in general, is still more applicable to him who undertakes to treat successfully aural diseases.

Much advancement has made in the last few years in aural surgery especially that of the mastoid, but with this exception we have not made any wonderful strides since Wilde and Toynbee published their work some fifty years ago. This statement will probably be strenuously denied by many specialists of the present day but such is made after a close perusal of an old book on "Diseases of the Ear" by Joseph Toynbee, F. R. S., published in London in 1860. With the exception of better illustrations as exemplified by the printers art and leaving out the operative treatment of the mastoid and the failure to recognize adenoid vegetations as a causal factor in middle troubles, this old book of Mr. Toynbee's is as clear exposition of aural diseases as can be found in any of the text-books of the present day. It is a good deal clearer exposition of the subject than the majority of the modern text-books, in that the author gives results obtained from personal investigation and experience. The plates in this book of anatomic and pathologic ear specimens are all taken from his own dissections and every portion of the temporal bone is beautifully represented. It is a pleasure and a profit to peruse the pages of this old book and in doing so I have gained much valuable information. The arrangement and classification are different from the more modern works and yet there is a logical sequence which appeals to the student. No subject is discussed without its being followed by illustrative cases from practice, a

happy feature of any text-book, and it is surprising to find the treatment therein contained quite similar to much that is used to-day.

During the last few years there has been too much of a tendency especially among specialists, to publish text-books and manuals, showing their own names on the title page when frequently and in fact most often the whole work is nothing more than a compilation of the subject from older authors. I have never thought that such enhances the reputation of its author and certainly adds nothing to our present knowledge.

Deafness due to some pathologic lesion of the external ear such as obstructions are as a rule easily recognized by the experienced otologist and likewise easily remedied. It is in diseased conditions of the middle and internal ear that deafness arising therefrom gives us the most trouble.

Physiologic experiments and anatomic dissections must as yet be the chief factors in furnishing us with knowledge concerning the internal ear and a basis upon which to form a diagnosis when that organ is diseased. It is true that comparative tests, as for instance with the tuning forks, have given us much valuable information in reaching a diagnosis but the experienced clinician will have to admit that even these tests are by no means positive. Leaving out of consideration the treatment of internal ear lesions as a cause of deafness, for when such has been recognized during life the treatment is quite uniform among otologists, we wish to consider for a few moments the pathologic conditions of the middle ear which produce this symptom and what benefit may we expect from the various methods which have been proposed for its remedy. We would make a still further limitation by considering the deafness dependent upon a dry condition of the middle ear in contradistinction to that produced from otorrhea. In other words we will consider the deafness dependent upon the so-called "dry-catarrh of the middle ear."

Unless we recognize that even this dry catarrh presents two entirely different histo-pathologic conditions, our treatment can never be definite and it will be fortuitous should success attend our endeavors. In this day of quickly made specialists the public is made to suffer through their ignorance, for they treat all cases alike

being ignorant of the very first principles which are needed for the recognition of these pathologic states.

"A primrose by the river's brim,

"A yellow primrose was to him, and nothing more."

It is a plea for a more minute study of every case of deafness why this paper is brought before you to-day and to deprecate the habit of having a routine treatment for all cases. Bear in mind that I am not considering deafness dependent otorrhea but those cases where the drum is intact and the middle ear is not open to ocular inspection. Clinical experience has taught me that the prognosis in these cases is dependent upon:—

1. Age of the patient.
2. The pathologic condition of the nose and naso-pharynx.
3. Duration of the deafness.
4. Condition of the eustachian tube.
5. Mobility of the drum and ossicles.
6. The general health of the patient.

1. Age of the patient. All experienced otologists must agree that deafness in the young dependent upon a catarrhal condition of the middle ear is much more successfully treated than when it occurs in adult and the very old. In fact my own experience teaches me that success in treatment is in direct ratio to the age of the patient. This is accounted for in two ways, (a) the duration of the deafness is naturally longer the older the patient is, and (b) nasal and naso-pharyngeal lesions occur more frequently in the young and as a rule are more amenable to treatment. One great reason why the prognosis of deafness in the young is so favorable is due to the frequency of the presence of adenoids and enlarged faucial tonsils, by the removal of which there is nearly always a marked improvement in the deafness.

2. The pathologic condition of the nose and naso-pharynx.

The prognosis for catarrhal deafness is always more favorable when there exists distinct morbid conditions in the above parts which can be removed through appropriate treatment. The fact that the mucous lining of the middle ear and eustachian tube is continuous with that

from the nasal cavities and naso-pharynx readily accounts for the causal dependence between the two. Stenosis of the nasal chambers from all causes, naso-pharyngeal catarrh from adenoids or the remnants of such, are conditions frequently found which exert a baneful influence upon the functions of the middle ear. If they exist and can be removed the prognosis for the deafness is certainly more favorable although such conditions are not always a *propter hoc*. I believe however that too much importance has been attached to such morbid conditions as mentioned above and thus the prognosis has often been more sanguine than it would otherwise have been. I would not have you think that I underestimate the close relationship existing between catarrhal deafness of the middle ear and the pathologic conditions just mentioned but that such are the whole cause when they exist, as some would have us believe, I would never admit. There is some undiscovered reason for deafness, look at it as we may, and until we do discover it we shall not be able to tell why one patient who has a perfectly normal throat and nose is a sufferer with deafness and the man whose nasal cavities and naso-pharynx are both diseased, goes through life untouched.

3 Duration of deafness.

This is self evident to the experienced otologist. The longer the pathologic conditions, which have aided in producing the deafness, have existed, the more marked is their influence on the tissues and consequently the more difficult are they of removal.

4. Conditions of the eustachian tube.

For years this one organ of our body has been made to suffer for the sins of others. The idea that all catarrhal deafness is caused by a diseased condition of the eustachian tube, especially that of stenosis, is as deep rooted in the minds of many physicians as is the Rock of Gibraltar.

That such is frequently the case all must admit, but that it is universally so is erroneous teaching. The habit of inflating every ear which comes to you for treatment is unscientific and sometimes injurious. While not so frequent yet undue patency of the eustachian tube may exist as well as stenosis. Experience has taught me some valuable lessons which can not always be found in books.

There are only two ways of examining the patency of the

eustachian tube: the first is by means of the catheter and auscultation tube, and the second is by means of bougies.

No conscientious otologist should ever inflate the middle ear without using the diagnostic tube, for the sensations of the patient are too unreliable to be depended upon. By the constant use of the auscultation tube and the same catheter one can soon learn to diagnose the condition of the lumen just as by auscultation the physician learns to diagnose the condition of the lungs and bronchial tubes. I say the same catheter, because if different ones be used with varying sized lumens, the sounds heard will also vary. The Politzer bag has been discarded for two reasons: (1) because it frequently blows mucus from the nose into the eustachian tube, and (2) because it is very difficult to keep clean. In chronic catarrhal deafness the medication of the tube and middle ear can only be satisfactorily accomplished by means of the catheter, if we wish to obtain the best results. To my mind there is but one kind of catheter to be used and that is one of pure silver which is capable of being bent and thus able to be made to fit the naso-pharynx of every patient. To pass properly this instrument requires some little knack, and when the physician finds that he does not possess this quality he had best use some other method of inflation rather than injure the mucous membrane. The slightest trace of blood following the use of this instrument indicates that it has been used improperly. With children it is best not to use the catheter and during the last few years I find that an apparatus like the multiple comminuter or globe nebulizer attached to a compressed air cylinder and used for inflation, accomplishes all that could be expected, and causes much less fear to these young individuals than any of the older methods.

5. Mobility of the ossicles and drum.

Ankylosis and membranous adhesions in the middle ear prevent free motion of the ossicles when the drum is vibrated. As a rule adhesions are surmised when the drum is retracted. The mobility of the drum and secondarily that of the ossicles is best ascertained by means of Seigel's pneumatic speculum, which produces suction in the external canal and at the same time allows ocular inspection of the drum. When this instrument shows distinct im-

mobility of the head of the malleus and also the handle, and when only the free portion of the drum membrane moves backward and forward, the presumption is very strong that the ossicles are ankylosed or bound down with adhesions. My own experience teaches me that the prognosis is much more favorable when the ossicles and drum membrane move freely together under the same traction force.

6. General health.

Just as in other organs so in case of the ear, a run down condition of the general system makes the prognosis more unfavorable. Especially is this the case when the patient is of a tubercular diathesis. Pronounced anemia and rheumatism in my experience are always unfavorable. The tuning fork tests I have not considered because in the first place the results obtained by them are relative and in the second place I have only considered those tests which are objective in character. The tuning fork in conjunction with other tests affords us frequently excellent information as to the seat of the pathologic process but I must say it has aided me very little in knowing what remedy to apply.

Prognosis dependent upon the ability to hear the tick of a watch is exceedingly unreliable and he who depends upon such will often come to grief. The human voice in different degrees of intensity has in my experience proven the most satisfactory test of all in determining the prognosis in any given case.

Passing now from the prognosis I wish to say a few words in regard to some points in the practical treatment of catarrhal deafness. The modern treatment is based upon the principle that the large majority of such cases owe their origin to some pathologic condition of the nasopharyngeal or nasal cavities. Within certain limitations this proposition is true, and yet the otologist who treats his cases with this all-pervading idea will often be sadly disappointed. Nasal stenosis is one of the most frequent exciting factors in catarrhal deafness, and yet marked cases of this condition are found where the ears are never affected. However, there is certainly a close relationship between the two. In catarrhal deafness the nasal passages should always be placed in as healthy condition as possible, but unless there is marked stenosis we need not

expect very brilliant results from that treatment alone. Adenoids in children are the most frequent cause of deafness in these young subjects. The removal of such is frequently followed by the most brilliant results, and always to the point of benefit. I would always urge the removal of adenoids at the earliest age possible before their evil effects have taken too firm a hold upon the subject. Such growths, in my experience, act not by direct mechanical obstruction of the eustachian tube, but indirectly by pressure and more especially by fostering a catarrhal condition of all the membranes in their neighborhood. Their presence causes a constant congestion and hyperplasia of the mucous membrane lining the eustachian tube just as a polypoid degeneration of the middle turbinate will cause an enlargement of the inferior turbinate through pressure stasis. In the adults, and even at all ages, the nasopharyngeal mucous membrane is sensitive and in the majority of cases needs soothing remedies, and the old idea of mopping at random this cavity with strong solutions of nitrate of silver is barbarous in character. Such applications may sometimes be necessary, but should be made by means of cotton on the end of a wire passed through a catheter. This latter requires some delicacy of touch, but when rightly applied often produces the most happy results. Stenosis of the eustachian tube, when due to swelling and hypertrophy of the mucous membrane, is best treated by applications direct to the membrane through the catheter thus medicating the cavity of the middle ear as well.

When there are distinct strictures of a fibrous character, whale-bone bougies are exceedingly valuable, but exceedingly harmful if the physician does not possess that *tactus eruditus*. Rapid dilatation by means of electrolysis with metallic bougies has not obtained for me those excellent results reported by Duel, of N. Y. I have tried this method in several cases, but with success no better than that obtained with the ordinary bougies. A precaution should be used of not inflating the ear after the use of bougies for fear of producing a local emphysema, as once occurred to me.

I am decidedly of the opinion that the injection of vapors into the middle is far inferior to the use of liquid

medicaments. Iodin and menthol in liquid albolene have yielded me the best results. Fischerich, of Wiesbaden, has reported a great improvement in deafness from the use of injections of 6 to 8 drops of a 2% solution of pilocarpin. I have also used an injection of liquid paraffin, as recommended by H. Burger, but have never seen any markedly favorable results therefrom.

Pneumatic massage of the drum when there is a decided retraction of this membrane with accompanying ankylosis of the ossicles from fibrous adhesions, has been receiving considerable attention during the last few years. In conjunction with other methods it has in some cases decided value but it is by no means a *sine qua non* as some would have us believe. If Siegel's speculum shows us that only the peripheral portion of the drum membrane moves and the malleus and incus remain fixed, we need not expect much benefit from this method of treatment. However if all the parts move together, daily massage will prove a very valuable adjunct to the other remedies. It is not necessary to have one of the expensive apparatus as I have found that Siegel's speculum does for me all that could be expected and has the advantage of allowing one to see just how much suction is being exerted. When the malleus is fixed and immobile, instrumental manipulation is the last resort.

To sum up the treatment in a few words I would say:

- (1.) See that the nasal cavities and nasopharynx are placed in as healthy condition as possible by the treatment of all catarrhal states and the removal of all obstructions to free respiration.
- (2.) See that the eustachian tube and middle ear are medicated at proper intervals in addition to the inflations.
- (3.) Render the drum and ossicles as pliable as possible by some system of massage.
- (4.) Don't forget the general health of the patient.

Such is an outline of treatment in catarrhal deafness and the prognosis is always a matter of uncertainty as to the amount of benefit to be received.

Grand Opera House Bldg.

XVI.

HAY FEVER.

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HARTFORD, CONN.

I would state at the outset of this brief paper that I have no new theory to suggest and no especially new lines of treatment. It seems to me that the neurotic theory so fully satisfies all existing conditions found in hay fever that we do not need a new theory so much as a clearer conception of the underlying causes which predispose to the attacks and the exciting causes of which pollen, dust, various odors, uric acid, etc., are only a few of the more marked and better studied.

That hay fever occurs almost exclusively, I think I may say exclusively, in individuals of acquired or inherited neurotic temperament is a well established fact, and yet physicians, as well as patients, are still searching for a specific to a condition which can not always be cured by the same remedy or line of treatment any more than a prescribed course of diet and remedies would be applicable to all cases of neurasthenia. As I study the patients, with hay fever, who come to me from year to year, I am more confirmed in the belief that I am treating cases of neurasthenia with the addition of certain symptoms for which we have a special name. Hay fever is certainly a very unfortunate title but it is so firmly fixed in the minds of the laity that it will probably never be changed.

Most writers name a three fold basis in the etiology of the disease, viz.: A neurotic habit; a diseased condition of the nasal mucous membrane and an exciting cause, but I think we may safely say that unless the first be present we do not have hay fever. Why all persons of neurotic habit and irritable or diseased mucous membrane do not have hay fever when exposed fully to the exciting causes will never be explained any more than the reasons why

one person faints at the sight of blood and another does not, or why one woman becomes hysterical under conditions that do not in the least disturb her sister.

I have seen farmers working day after day in grain that was mixed with large quantities of the despised "rag weed" and yet a case of hay fever was unknown among them. Certainly it was not from lack of diseased nasal mucous membranes for that was the rule rather than the exception, and although the nasal secretions were greatly augmented while working under the conditions mentioned, they subsided very quickly when they came into a clearer atmosphere. The neurotic habit, however, is something they know nothing of and nervousness is to them a synonym for foolishness.

On the other hand I have seen a mechanic sixty years of age who had worked more than half his years in the same shop, lived in a crowded unsanitary part of the city and suffered from depressing influences of his domestic life, go into the country for a few days of rest during the haying season. After working in the lot one very hot day he developed severe symptoms of hay fever which persisted until frost came. The following year, although he remained in town, the disease came on in full force and he applied for treatment. Under regular treatment for two years he escaped the disease on the following year and has remained free since.

Here was a typical case where all the predisposing causes existed except some special irritant or influence which he found in the heat and dust of the hay field. Although he had at various time in previous years visited the same locality during the haying period he had never suffered before from the disease because his nervous system was in better condition and the chain of predisposing cause, therefore, was not complete.

TREATMENT.

Success in the treatment of hay fever does not depend so much, at the present time, upon the discovery of new remedies as upon the thorough and intelligent use of well known remedies and hygienic measures. Indeed it is a question primarily of obtaining the willing and complete cooperation of the patient for a period of time which in

many cases must be extended over years rather than weeks or months. Like the soldier of the regular army, in time of peace he may have little to do more than report at regular intervals or stand subject to call but he should be ready to report at the appointed time.

It is in some cases quite impossible to teach the patient that he is suffering from a disease for which there is yet no specific or to make him understand that he has not fulfilled his whole duty to himself or his physician if he simply seeks relief from the severe symptoms that occur during the height of the disease. During the past ten years I have treated a considerable number of cases of hay fever and the new cases almost invariably come to the office simply hoping to be temporarily relieved of the nasal obstruction, cough or asthma, or to be cured by some magic remedy that shall be prescribed. When the requirements of the case are fully set before them they will follow one of these courses:—

1. Decline treatment altogether.
2. Make a few office calls, obtain a measure of relief and drop out of sight altogether, or for at least a year.
3. Follow as nearly as possible such directions as you may give them and return at the appointed time each succeeding year. The last class, if they do not always obtain a complete cure certainly obtain sufficient relief to permit them to follow their avocations and spend less money than either of the other classes with grater satisfaction to themselves and attending physician.

I have several such patients who consult me at intervals from early May to October each year. They have thus been enabled to follow their regular work or remain at home throughout the hay fever period and the expence for treatment is but a small fraction of what they formerly lost in wages of business, or spent for a six weeks sojourn in the mountains.

As the time for the anticipated attacks approaches patients must be warned against all over-exitement or depressing influences. Irregular or insufficient hours of sleep, too much social life, excessive card playing, sexual excess, overwork, either mental or physical, or excessive use of alcohol or tobacco. Some of these patients are very near the borderline of insanity and the other mem-

bers of the household need to understand that they must be spared, as far as may be, the little annoyances of domestic life during the season when the disease prevails. One of my cases last August was made very much worse by the sudden illness of her sister, who was paying her a visit. At another time the departure of a son, who was expected to be absent for some months in a distant state, was sufficient to bring back all the symptoms in full force. Hope is a most helpful element in the treatment and we should give patients all the honest encouragement that the circumstances will permit. One lady, now under my care, was made very comfortable for two years by the mind cure. Here is a suggestion that we should not lose sight of. The positive assurance that she would be relieved enabled her to become less self-centered and much of the usual nervous tension was relieved.

As a tonic I have not found any medicine so generally useful as *nux vomica* or its alkaloid, strychnin. One of my patients has taken it for more than a year with great benefit. Quinin, hypophosphites and other tonics may be indicated but as in other diseases we must be guided by the general condition and idiosyncracies of the patient.

Opium is a dangerous remedy. Bromids have a very limited range of usefulness. In especially nervous cases I have found the common pill of camphor, hyoscyamus and valerian quite useful and not depressing. Heroin, the new remedy, promises to be an important addition to our means of allaying the accompanying cough or asthma. It is also an excellent aid in the treatment of gastro-intestinal irritation that some of these cases suffer from. The initial doses of heroin should be small, not over 1/30 of a grain every two to four hours at first. Many persons are very sensitive to it. One of my patients was almost stupefied from 1/12 grain doses repeated at intervals of four hours for one day. Occasionally it causes extreme nausea and vomiting. From a considerable experience with it I am sure it is a drug to which patients are not nearly as liable to become addicted as they are to opium, morphin or chloral, yet I would not be understood as advising its unguarded use.

My experience with the dried suprarenal gland extends over one year only, but I can fully agree with all the fav-

orable comments that have been made upon it. I am sure that all who do much nasal work would not be willing to be deprived of it. It so supplements the effects of cocaine that all the unpleasant reaction and hemorrhage so likely to follow the use of that drug are perfectly overcome. It may be used by patients as a spray or local application without risk and certainly for the temporary relief from the nasal obstruction it is the best remedy yet discovered. To obtain the constitutional effects of the suprarenal gland I have usually found four tablets a day sufficient although more may safely be given. Cocain I never allow fever patients to use for themselves in any mixture or solution of any kind whatsoever. It is the most seductive drug in a physician's armamentarium. The depressing after effects of it are often very marked in persons of nervous temperament, even when used in moderate quantity as a local application. One of my patients, an elderly lady, was always made faint by using a few drops of a 2% solution in the eye. I found that I could not deceive her by using solutions of other substances.

All necessary operative work on the nose should be done before or after the hay fever season. I have entirely given up the use of the chemical or actual cautery during the disease. A weak solution of nitrate of silver, two to six per cent., is the strongest application that I now use and only that in select cases. Some patients are made very uncomfortable by even the weaker solution of this drug.

After trying most of the various applications and douches that have been from time to time recommended I am convinced that a mild alkaline cleansing solution thoroughly used, followed by a proper application of a saturated solution of suprarenal gland to contract the nasal membrane, supplemented by an astringent protective ointment gives the most satisfactory results. Patients get more protection from using a non-irritating ointment twice daily than from any form of nebulizer that I have tried. They soon learn to apply it very readily with an applicator and bit of absorbent cotton directly to the sensitive parts. For the irritation of the conjunctiva a 2% solution of nitrate of silver applied to the inverted lids every second or third day while the patient uses a solution of boric acid during the interval, generally suffices. In some cases a weak solution of

acetate of lead or a saturated solution of borax with ten per cent. of glycerite of tannin added are efficient and less irritating.

Briefly summed up my argument is:

1. The successful treatment of hay fever demands close attention to all the details regarding the patients habits of life, idiosyncrasies, diet etc., for a considerable period of time.
2. All surgical measures that may be necessary should be applied when the patient is not suffering from the disease.
3. Great caution must be exercised in the use of drugs that enthrall as hay fever patients are usually very sensitive to their action.

XVII.

THE TREATMENT OF PERITONSILLAR ABSCESS
WITH EXHIBITION OF NEW IN-
STRUMENTS.

BY NORVAL H. PIERCE, M. D.,

PROFESSOR OF OTOTOLOGY, POST-GRADUATE MEDICAL SCHOOL AND
HOSPITAL; LARYNGOLOGIST AND OTOLOGIST TO THE
MICHAEL REESE HOSPITAL AND EMERGENCY
HOSPITAL; FELLOW OF THE CHI-
CAGO ACADEMY OF MED-
ICINE.

The object of this paper is to accentuate an important point, i. e., the proper place of incision in opening peritonsillar abscesses, and to exhibit instruments which enable us to successfully and safely meet the indication. It is surprising that this matter is neglected by nearly every French, German and American text-book on throat diseases.

Nothing is more annoying to both patient and surgeon than the attempt at reaching the pus of such an abscess proving futile. And nothing is more gratifying to both, than its successful evacuation, for not only are the distressing symptoms immediately relieved, but in the majority of cases the mere first incision is curative. This is true not only of advanced abscesses, but suppurating foci in this region at their very inception tend to heal when incised: so that early incision is not only justified but indicated. On the other hand, while nearly all peripharyngeal abscesses will rupture spontaneously after from six to sixteen days, they will not always do so. Examples are on record of gravity abscesses resulting, the pus dissecting its way to the sub-hyoid region about the esophagus, or to the posterior mediastinum, and pleural cavity. Cases of fatal erosion of the great vessels of the neck also have been recorded as well as of fatal pyemia from peritonsillar abscesses, the local characteristics of

which were not alarming. We should therefore, never leave a peritonsillar abscess rupture spontaneously.

Where shall we incise? At what point will our incision be most likely to meet the smallest quantity of pus? Most authors recommend incision at the point where the most bulging seems to be. This is usually at the upper anterior surface of the anterior pillar, within a centimeter from its edge. That the bulging is not always due to pus pressure is proven by frequent disappointments after incision here. In many cases the bulging is due to edema, or it may be due to the tonsil itself being pressed downward and forward by the pus pressure. Suppuration within the tonsil proper is very rare. Chiari recommends as the best place for incision a point in the middle of a line drawn from the base of the uvula to the crown of upper wisdom tooth. But this point of incision is recommended for the purpose of avoiding the large vessels. It has no reference to the most likely situation of the abscess. That spontaneous rupture of such an abscess takes place through the anterior pillar cannot be questioned. They rupture through the posterior pillar too, but by far the most frequent place at which spontaneous rupture occurs is in the fossa supratonsillar which may be best seen by pulling out the tongue, depressing its dorsum with a spatula, pushing outward the opposite corner of the mouth and inclining the head to the opposite shoulder.

The fossa supratonsillar is situated between the anterior and posterior palatal arches and above the tonsils; its mouth or opening into the pharynx is somewhat triangular in shape its base being formed by the tonsil, its anterior and posterior border by the respective pillars of the fauces. It extends inwards and upwards and outwards into the soft palate, downwards and anteriorly between the tonsil and the plica triangularis and sends a prolongation downward a variable distance behind the tonsil. It is in this region that the suppurative process resulting in peritonsillar abscess takes place. Its mouth becomes occluded by swelling of the tonsil and mucosa of the pillars, occlusion occurs from fibrinous material being extruded on the surface of the tissues and the fossa becomes a closed cavity. The abscess may begin in the upper or palatal portion of the fossa; it may be in the anterior portion, between the

tonsil and the plica triangularis; it may be even in the portion behind the tonsil; wherever it is situated it may be, if not always, most frequently and most safely reached at a point below the junction of the anterior and posterior pillars, for at this point all the other portions converge.

For the purpose of opening abscesses in this place, I have had constructed two instruments, one a knife, the other a dissector. The blade of the knife is turned at right angles to the shaft and has cutting edges antero-posterior. This knife has been largely supplanted by the sharp pointed dissector. Both are introduced into the supratonsillar space in the direction outward slightly upward and backward. The ends of the dissector for one inch are curved at right angle to the body of the instrument. You will notice that they are grooved so that pus will escape as soon as it is found. When the abscess cavity is entered, the



branches of the dissector are opened thus greatly aiding the escape of pus and preventing the opening from immediately closing as is the case in simple incision. In cases where the pus is thick or ill-smelling, the cavity is carefully washed out with permanganate solution 1-500 with the accompanying instrument. The forceps points are sufficiently sharp to enter the soft supratonsillar tissue and yet not enough so as to wound a vessel with which they might come in contact. When, however, the external mucosa is too dense for the dissector the knife may be used to make the initial incision, then the other instrument is used as in blunt dissection.

In conclusion I would accentuate the importance of thorough evacuation of the abscess and irrigation. I am convinced that a number of cases of recurrent quinsy have been due to incomplete evacuation, a portion of the inflammatory material remaining, becoming more or less encysted and breaking forth anew whenever the elements necessary thereto present themselves.

XVIII.

AN INTERESTING CASE OF TUMOR OF THE
THROAT.

BY E. HARRISON GRIFFIN, M. D.,

NEW YORK CITY.

LECTURER ON DISEASES OF THE NOSE AND THROAT IN THE NEW
YORK UNIVERSITY AND BELLEVUE MEDICAL COLLEGE; ATTEND-
ING SURGEON TO THE THROAT AND NOSE DEPARTMENT OF
BELLEVUE HOSPITAL OUTDOOR POOR.

Mrs. X. a well nourished Bohemian woman about fifty-two, complained of tumor of the throat, which caused her a great deal of annoyance again and again.

She had been unable to sleep for a couple of nights as she had been told that an operation was imperative and must be undertaken at once, otherwise she was liable to choke to death.

An examination showed the larynx, the vault of the pharynx and buccal cavity normal. Examination of the nasal cavity showed a slight deflection of the septum towards the right side.

I treated her pharynx which showed a slight collection of mucous, with an astringent and told my patient not to worry over her condition, but to follow out my directions in full.

I prescribed a mild laxative and an ointment for her catarrhal condition and told her that perhaps later it might be necessary to operate on her nose.

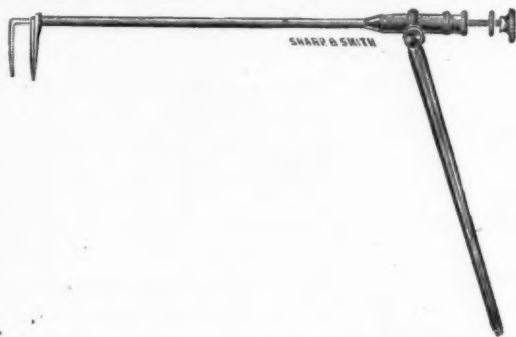
She seemed very much relieved at my diagnosis of her case, but in the space of four days, she again paid me a visit and stated that the tumor was there again in her throat.

I now repeated my four examinations and found everything normal.

I sprayed the throat and nose and told her the tumor she complained of was nothing but a piece of phlegm and not to worry about it. Again I dismissed my case.

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I now repeated my four examinations and found everything normal.

I sprayed the throat and nose and told her the tumor she complained of was nothing but a piece of phlegm and not to worry about it. Again I dismissed my case.

Three days afterward she again applied for treatment, stating that she could not sleep, eat or swallow anything as the tumor made its appearance in the throat now so she and her daughter could see it plainly. She was going to tear a piece of it out and show it to me.

Her physician had told her that the tumor could easily be removed as it was so high up.

He had seen it upon the patient's first visit and this was the reason he had sent the case to me.

I again started in to make my examinations.

I called the daughter to my side after I had depressed her mother's tongue and illuminating the buccal cavity asked her to point out the tumor to me.

At first her face was a blank, the tumor could not be seen, when suddenly her face beamed with pleasure; "There it is, doctor, there."

My spatula had now depressed the tongue well at its posterior portion and the lip of the epiglottis was well in view.

"There it is, doctor." She was pointing to the epiglottis. This she had desired me to tear out.

This is what a man with a large lucrative practice in New York City mistook for a tumor. Surely the specialist has a place in medicine.

112 West 45 St.

SOCIETY PROCEEDINGS.

THE AMERICAN LARYNGOLOGICAL ASSOCIATION.

Twenty-Second Annual Meeting, Held at Washington, D. C. May 1, 2 and 3, 1900.

President's Address by PRESIDENT SAMUEL JOHNSTON, M. D. (Baltimore).

After returning thanks to the members of the association for the honor conferred upon him, the president spoke of the future policy of the association. He believed that new members should be elected by a two-thirds affirmative vote of the entire membership. Old members should be encouraged to continue in active work. Scientific and clinical work should go hand-in-hand. One should avail himself of all possible advances in diagnostic ability—as, for instance, the determination of leucocytosis as an initial feature of malignant disease. More attention should be paid, in teaching students in rhinology and laryngology, to operative work on the cadaver. Members of the association were looked to as teachers, and consequently great care should be taken in the selection of new candidates. The aim should be not mere numerical strength, but skill in attainment. In the programmes of the future it might be well to limit the number of papers, but more attention should be given to discussion. The former should be grouped in two general classes, scientific and clinical. No opinion should go out from the meetings as official unless it was founded on facts. Mild measures, especially as concerned the use of the cautery, saw and trephine, should be strenuously urged. A committee of censors, to be elected annually, should be established which should pass on all matter to be published in the annual Transactions. In conclusion, a feeling tribute was paid to the memory of two active fellows who had died during the year—Dr. Max Thorner, of Cincinnati, and Dr. Joseph C. Mullhall, of St. Louis.

Fractures of the Nose by DR. T. A. DE BLOIS, (Boston).

He said that "broken" noses, so-called, were not, as a rule, really fractured. They were rather cases of bony displacement and dislocation. They might be classified according to the degree of injury and also according to the relation of the parts involved. There might be a dislocation (not fracture) of the nasal bones, *i. e.*, a solution of bony continuity, or there might be a fracture of the nasal process of the superior maxilla or of the zygoma. Injuries might also result during parturition or from nursing or sleeping, from the constant impact of the nose, delicate at this period, against the mammae or the pillow. Then again there were the cases occurring from falls, blows and collisions. In the "upper-cut" blow of the boxer, there was injury to the septum, followed by swelling, possible abscess, and detachment from the subjacent parts. The "side" blow gave a double dislocation of the nasal bones, while in the direct "front" blow the internal nasal border was driven downward and outward. Treatment consisted in the reduction of the dislocation, which might require a general anesthetic. These flat noses might be properly manipulated so as to dispense with external apparatus. For an internal splint, a bit of stiff rubber tubing inserted by means of a closed pair of scissors (well greased so as to facilitate their withdrawal) might be of service. The elastic recoil of the rubber slowly acting will often force a dislocated nose into place, though some few days might be required to produce the full effect. Plaster of paris bandage made an excellent external splint. Illustrative clinical cases were then described.

Dr. De Blois also exhibited an illustration of an abnormality of the uvula, which was double, one mass seeming to come from the anterior and the other from the posterior faucial arch. The former was amputated, leaving the latter appearing as a perfectly normal organ.

DR. EMIL MAYER (New York) inquired of Dr. De Blois if he had not found the rubber internal splint irritating to the nasal mucosa. He himself preferred to use gutta-percha, which could be accurately moulded to fit each individual case, and was less collapsible. Elongated forceps could be used for the replacement of recent cases.

Dr. De Blois replied that the rubber was to be retained only temporarily, until perfect reduction had been secured.

DR. W. E. CASSELBERRY (Chicago) recommended the use of a general anesthetic for perfect diagnosis and reduction. Deeper injuries were very painful, and in children without an anesthetic proper examination was impossible. He commended the external plaster of Paris dressing. The objection to all forms of special apparatus was that they were rarely at hand when wanted, and were difficult to keep in position. Plaster could be moulded over the nose, carried back to the line of the ears, being made thinner posteriorly, and secured by tapes passing above and below the ears behind the head. Such splints had to be worn ten days, and were, of course, a disfigurement. For internal splinting nasophen gauze applied under cocaine acted admirably. For fractures low down in the nose, the ordinary vulcanized tube answered very well.

DR. JONATHAN WRIGHT (Brooklyn) called attention to the statements found in the writings of the fathers of medicine respecting the treatment of nasal injuries. The fingers of a child, thongs attached to plugs on the concave side of the injury, etc. had all been advocated. In a recent case, one authority had inserted a plug made from the lung of a sheep. All the ancients objected to the use of absorbent material as rapidly tending to become foul.

DR. JOHN O. ROE (Rochester) commended the use of a thin metal splint externally with an internal dressing. An anesthetic should be given when the injury was at all severe. Adhesive plaster was an admirable retaining material.

DR. H. L. SWAIN (New Haven, Conn.) called attention to the mechanics of the nasal arch, saying that if one could bring the two nasal bones into proper approximation, they would support each other. If the patient could be seen frequently, he would dispense with all apparatus.

DR. F. C. COBB (Boston) had had as good results without as with apparatus. The behavior of the nose during the first two days after the receipt of the injury would determine whether or not apparatus might be safely dispensed with.

DR. W. K. SIMPSON (New York) advocated the use of the Bernays sponge specially shaped to fit the inside of the nose. It offered ideal requisites for this purpose, being easy of introduction and hemostatic by the equable pressure it exerted.

DR. W. F. CHAPPELL (New York) had used the sponges, attaching them by iodoform collodion to a thin plate of gutta-percha, a device which had, in his hands, proven of great value.

Atrophic Rhinitis.—read by DR. J. E. LOGAN (Kansas City, Mo.)

He reviewed the various theories of the pathology of this condition, condemning the introduction of the very large number of clinical terms which had been used to describe it. Four theories as to causation seemed worthy of special consideration: (1) hypertrophy, cutting off the blood supply by pressure, thus inducing atrophy; (2) suppurative rhinitis in children; (3) bacterial causation; (4) sinus disease. For himself, he was inclined to attach importance, on the basis of his own experience, to the last-named theory. He narrated the histories of several cases in which opening and curetting of the ethmoid cells cured the atrophic rhinitis. One unexplained fact in these cases was the real source of the immense amount of secretion.

DR. COBB had observed in his own ethmoid cases marked atrophy on the side of the sinus disease. In persistent sinus discharge he had noted a steadily increasing atrophy of the intranasal structures.

DR. WRIGHT stated that post-mortem examination did not show that close connection between atrophic rhinitis and sinus disease that had been claimed by Grünwald and others. In his own personal experience, the inferior and not the middle turbinate was the structure primarily attacked. The etiology of atrophy here was hard to determine. There was no analogous process in any other part of the body. He was inclined to attach much importance to the recent views of Cholerva and Cordes, who looked upon the process as the result of a rarefying osteitis, commencing with a bony hypertrophy, the little canals in the bone containing an artery and vein becoming occluded by the bony growth. As a result the blood supply to the mucosa was shut off. How this process actually began was a matter of much less importance. Recent anthropometric investigations had confirmed Hopman's view as to the causative relation of a short antero-posterior nerve dimension, and still more strongly Fraenkel's contention

as to the special occurrence of the affection in the brachio-cephalic type of skull. This latter observation, however, might be referable only to certain geographical areas, especially in Germany and Switzerland, and not applicable to American patients. No one cause was alone applicable in every case. In his own experience, seventy-five per cent. of the cases had occurred in women, and the sexual life might be an important factor.

DR. SWAIN called attention to the fact that the rarefying osteitis had been marked as the cause of intra-nasal oedema and polyp formation, but he realized that intra-nasal conditions might differ in different types of skulls. The brachio-cephalic type of naris might cleanse itself with more difficulty than would other types.

DR. J. E. BOYLAN, of Cincinnati, inquired if Dr. Wright had ever seen patients spontaneously recover after the menopause.

DR. WRIGHT answered that he had noted a cessation of symptoms, while the objective atrophy remained.

DR. CASSELBERRY declared that we must not overlook the associated atrophy of adjacent parts; there was also an atrophy of the lymphoid structures, a non-sensitiveness of the parts, and either a lack of development or an early shrinkage of physiologically associated tissues. The bony walls of the sinuses were especially thin in these cases. All of these lesions strongly suggested to him the theory of a tropho-neurosis.

DR. SIMPSON had seen cases persisting beyond the menopause with as much virulence as before.

Recurring Membranous Rhinitis Due to the Bacillus of Friedlander, With Report of a Case. Read by DR. EMIL MAYER, (New York).

The clinical history of the case described was a later chapter of the case previously reported before the American Medical Association by Dr. McReynolds, of Dallas, Tex. After the case came under Dr. Mayer's observation exhaustive microscopical and bacteriological tests were made, proving to his own mind that the membranous formation was due to the bacillus of Friedländer. Some thirteen or more previous cases were on record and were carefully analyzed by Dr. Mayer, who gave a complete *résumé* of the literature of the subject.

At the close of the session Dr. Boylan exhibited a hypodermic syringe for the application of cocaine to the pharyngeal vault for adenoid operations.

DR. J. H. BRYAN, of Washington, showed an aseptic syringe for nose and ear work and improved drainage tubes for the frontal sinus; Dr. R. P. Lincoln, of New York, a wax model of a recurrent tonsillar tumor with illustrative plates; Dr. Mayer, a hollow intubation tube introducer for use in laryngeal stenosis, the intubation tube itself being retained by an arm screwed in through the tracheotomy incision.

DR. T. R. FRENCH, of Brooklyn, exhibited photographs of a chair to be used in the employment of the upright position in ether operations on the nose and throat.

DISCUSSION.

The Early Diagnosis and Treatment of Laryngeal Cancer.

The discussion was opened by DR. J. N. MACKENZIE, of Baltimore, who spoke on "Methods of Diagnosis and General Principles of Treatment." The speaker said he would confine his remarks to certain phases of the question which were at the present time more pressing and of immediate importance. Omitting the matter of a possible cancer bacillus, there were three methods of arriving at a diagnosis: (1) The naked-eye appearances combined with the clinical history; (2) thyrotomy, as affording a more complete inspection of the parts; (3) microscopic examination of a removed fragment. The second method was frequently a part of the first. The latter was the most practical of all, though we had unfortunately relegated it to a subordinate place. The removal of a fragment for examination generally so stimulated the malignant growth that it marked the beginning of the end. As to the clinical history no one solitary symptom was of unequivocal value. Many cases might be positively diagnosed by this first method. He asked whether, when reasonable doubt existed, a piece should be removed for microscopic examination. In the view of the speaker he should answer absolutely in the negative. Under the term thyrotomy, we might include even a more extensive division of the cervical tissues than mere laryngo-fissure. This

was allowable in cases of reasonable doubt or when there was failure to define the exact territory occupied by the disease. Even here it might be impossible to map out the whole of the affected area. There might be a diffuse infiltration difficult, if not impossible, to recognize fully. As to removal of a piece for microscopic investigation it must be said that the patients were at once exposed to the danger of auto-infection or of metastasis. There was also the danger of stimulation and rapid increase of the neoplastic area. The method was unsatisfactory, inconclusive, misleading and often impossible. As to the nature of the infectious element in cancer we were still in the dark. It might be a bacillus or inhere in some peculiar vital characteristic of the cancer cell. As to treatment, the time would probably come when the treatment of cancer would be not surgical but medical. An antitoxin would probably be discovered. At the present time the only safe procedure was the total extirpation through healthy tissue of the cancerous mass, together with complete ablation of the neighboring glands and lymph channels. Surgical methods in the past had been incomplete, and eradication had been only partial. It was indeed often difficult to determine the limits of disease, and the microscope would show infiltration in areas which to the eye appeared normal. There was often a diffuse infiltration or there might be a deep-seated epitheliomatous mass which only slowly approached the surface. If the disease approached the middle line, removal of tissue should be early and complete. Such operations should be undertaken only by surgeons of skill, and there should be the proper ethical relation between surgeon and patient, so that the latter should authorize the former to do whatever seemed most advisable. Under these circumstances the laryngologist must come to the aid of the general surgeon. The removal of the lymph structures in the area under consideration was one of the easiest dissections of major surgery. A low tracheotomy should be done. The chief danger was the recurrence of the disease in the cervical lymphatics. In cases seen very early, in which the growth was small and papillomatous in appearance, circumscribed, not in the median line, and not especially malignant looking, we might remove one half of the larynx. Sometimes growths

which seemed pathologically malignant were clinically benign. If there was no evidence of malignant infiltration in the pedicle, we might possibly be justified in removing simply the growth as it appeared without the more formidable operation. But even here there was doubt as to whether we had completely removed all the malignant deposit. As to removal of one-half of the larynx, the remainder was not of especial service so far as voice production was concerned. Intra-laryngeal operations in cases of extensive disease were to be condemned. Simple thyrotomy with curettage was not up-to-date surgery, and was a reversion of procedure to the status of fifty years ago. No operation could be assumed as correct which did not include the removal of the lymphatics. Success by partial removal might be explained by a mistake in diagnosis. Many adenomata had mistakenly been classified as true carcinoma.

Methods of Treatment and the Statistical Results.—By DR. D. BRYSON DELAVAN of New York.

He discussed the aspect of the question and exhibited elaborate statistical tables not included here. The speaker had made, seven years ago, an earnest plea for the full reporting of all cases, not only those which were successful, but those which were not. The tables presented were a careful compilation of one hundred and sixty-three cases occurring in the practice of some eight continental surgeons. No one had been included who had not had at least ten personal cases. This excluded all American operators. The current statistics on the subject were faulty because they were too promiscuous. The cases were confused and there was a resulting repetition. In some instances the patient had undergone more than one operation, and so appeared in more than one category. Finally in the published statistics there was no sharp line of demarcation between thyrotomy and partial resection. Out of the entire number of cases studied there had been only six per cent. of recoveries, that is, the patients were alive three years after operation.

The Surgical Procedures, by DR. J. SOLIS-COHEN, of Philadelphia.

He said that before undertaking operation permission should be secured from the patient to do whatever seemed necessary. If the mass was of such a shape that a section could be punched out through the whole thickness, thus allowing examination of the cut surface, this procedure was permissible. If the growth affected the vocal band, a thyrotomy might be done and a knife be employed to remove the circumscribed diseased area. Partial extirpation was not reliable. In the performance of laryngectomy he would call attention to the following points: (1) In order to prevent the entrance of septic matter into the lungs, we should operate with the head of the patient in a semi-inverted position. Some material might be aspirated into the lungs, but this happened with a tracheal tampon, for absolute protection with the latter device is impossible. (2) Preliminary tracheotomy should be done, otherwise we may be troubled by the descent of the trachea. (3) The epiglottis should be retained if possible. (4) We should shut off all communication of the mouth with the air passages. In attaching the upper part of the trachea to the skin, the tube should be slit longitudinally for a short distance. (5) All dressings should be avoided. No packing should be allowed, as it caused a constant desire to swallow. Feeding by enema should be done and no tube be used per os. (6) The larynx should be removed from below upward, and after operation the foot of the bed should be elevated. For the proper attitude towards the practical problems of these operations a combination of the laryngological and surgical minds was needed.

DR. J. C. RICE (New York) expressed the conviction that the laryngologist should not turn over these cases to the general surgeon until the diagnosis was positively established. It was difficult to make an early diagnosis. He believed in giving the iodids and carefully watching the progress of the case before advising operation.

DR. EMIL MEYER (New York) called attention to the fact that cases often diagnosticated as laryngeal cancer, showed the origin of the growth to be in the esophagus. He thought that there was a very decided limit to the extent of applicability of endo-laryngeal methods.

DR. W. K. SIMPSON (New York) could not advise total extirpation without a microscopic examination of a frag-

ment removed for this purpose. No one could always make a diagnosis from appearances alone. If the case came to us early and showed an isolated deposit, we might use endo-laryngeal methods. In one of his own cases thus treated the man was alive four years after operation. In view of his personal experience, he could not advise total extirpation.

Secondary Hemorrhage after the Use of Suprarenal Extract.—This paper was read by DR. F. E. HOPKINS (Springfield, Mass.)

He gave the histories of three cases of posterior exostoses of the septum in which the extract had been used, and in which secondary hemorrhage resulted. The object of the paper was to give the opinions of various clinicians to whom the author had written, as to the liability of hemorrhage under the conditions named. Almost all agreed that there was considerable danger, and that safety required the use of intranasal packing after the extract had been employed. In regard to the remedy causing coryza after having been sprayed into the nose, there seemed to be an idiosyncrasy in this respect, and it could not be determined beforehand just who would and who would not be benefited by this procedure.

DR. H. L. SWAIN stated that he had had more hemorrhage with cocaine and the extract combined than with either alone. It should be remembered that the latter acted on the muscular fibre of the arterioles and did not lead to the formation of any coagulum. Consequently when the vessel relaxed there was liability of bleeding.

DR. J. W. FARLOW (Boston) had had no hemorrhage with the extract and had seen some remarkable cures of coryza follow its use. Yet it might benefit a patient at one time and cause him much discomfort at another. This experience has recently been met with in one of his patients. He had succeeded in removing headaches from intranasal conditions, sometimes in a very remarkable way. The question arose in such cases, how long it was judicious or safe to continue the use of the remedy.

DR. A. W. WATSON (Philadelphia) had seen more hemorrhage with the use of the abstract than without. He thought that after its use patients should be kept in the

office for half an hour or so. Then if any dangerous degree of vascular relaxation occurred, they would be under direct control. He had seen acute coryza follow the intranasal use of the extract, and in his own person had had under these conditions what he believed to be a general acute sinusitis lasting ten days. He had thought that in the latter instance the solution might have become infected.

DR. SWAIN said that if the fresh glands could be obtained, it was possible to make a solution of their active principles in acetic acid, and that this solution might be put up in glass tubes and kept indefinitely.

A case of Ozena of Probable Sphenoidal Origin.—This paper was read by DR. J. W. FARLOW (Boston.)

His patient was a girl aged twenty-one years, with a crusty, odorous discharge from the left naris. There was considerable atrophy of the intranasal structures, but the discharge seemed to come definitely from the posterior portion of the naris. The probe seemed to pass into a cavity which was regarded as the sphenoidal sinus. Syringing with peroxide of hydrogen and an alkaline antiseptic, and later curetting, practically relieved all the symptoms.

DR. S. W. LANGMAID (Boston) remarked that the recent epidemic of influenza would probably cause much sinus disease. That it did produce much acute trouble was in accord with his own experience, for he had recently seen five acute cases in two weeks. If the influenza attack passed off quickly, trouble in the sinuses would not result, but if for any reason the latter became obstructed, inflammation would be very probable.

DR. A. W. WATSON believed that ozena could occur independently of atrophy, or there might be crusts without ozena. He was inclined to regard true ozena as due to sphenoid and posterior ethmoid disease. He preferred a very weak formalin solution for the irrigation of these upper and posterior regions.

DR. FARLOW, in closing the discussion, said that it was always advisable in looking at these cases to have the patient wait after the nose had been thoroughly cleared out, for then it would be possible to ascertain the exact site of discharge.

Bullous Middle Turbinates.—DR. J. PAYSON CLARK (Boston).

He reported two cases, both in woman, the prominent symptom being headache. The enlarged turbinates were removed without incident by the cold snare, with complete relief to symptoms.

Cyst of the Larynx.—DR. CLARK also read this paper. The mass was situated on the middle of the right vocal cord and from its hardness suggested a fibroma. The forceps slipped from its surface at the first attempt at removal, but it was cut with a laryngeal knife, when a fluid escaped showing degenerated epithelial cells and leucocytes. The firmness was probably due to the deep situation of the cyst in the substance of the cord.

DR. JONATHAN WRIGHT, regarding the first paper of Dr. Clark, said that he was inclined to doubt the statement which had been made that these bullous conditions were the result of development from fetal conditions and presented no inflammatory evidences. He had examined several of these masses and had found on the convex surface what appeared to be osteoblasts and on the concave what appeared to be osteoclasts. The former produced bone while the latter absorbed it. The conditions met with might be due to the unequal activity of the two classes of cells beneath the embryonal layer of mucosa. It was a striking fact that most of these cases occurred in women and after the establishment of puberty.

Fibroma of the Larynx.—This paper was read by DR. A. B. THRASHER, of Cincinnati.

The patient was a woman aged fifty-six years, who had complained of dyspnea and hoarseness. Her family history was negative. The posterior and lateral walls of the larynx seemed to be the seat of some deposit, so that the true cords appeared pushed in and were defective in abductor movement. A fragment of the mass was taken for examination. The report was fibroma. Iodid of potassium was given in increasing doses, but in a week the patient was seen again and was much worse. After a preliminary tracheotomy with the head dependent and gauze packing, the larynx was split,

and it was seen that there was a submucous hypertrophy extending down the cartilage. It appeared to be simply connective tissue. It was removed with forceps and the patient made a good recovery. The voice was now rough and hoarse, but audible. Two similar cases were described. The rarity of the case consisted in the extensive connective-tissue deposit.

Singular Exhibitions of Partial Paralysis of the Vocal Cords due to Over-Use of the Telephone.—DR. C. C. RICE, of New York.

He said that he would make its title a query, for he desired to obtain the consensus of opinion as to the possible effect of over-use of the telephone on the voice. He had had two cases. The first was a nervous man, aged forty-five years, who had been accustomed to use a desk transmitter with his head in a cramped position. The cords showed evidence of fatigue of the thyro-arytenoid muscles, and there was a loss of sustaining power in the other outer muscles, for the cords trembled and the arytenoid cartilages separated immediately after approximating for phonation. The man was directed to take a rest from business and to use the telephone with head erect so as to afford perfect freedom of the cervical muscles. Recovery had been only partial. The other case was that of a man who was stout and not at all nervous. On the right side of the larynx there was fair adduction. The edge was straight but there was a lack of tension, with an incomplete view of the cord, which was obscured by the overhanging and congested parts. By rest and the assuming of a proper attitude while using the telephone, this patient completely recovered.

DR. T. A. DEBLOIS opened the discussion by relating the case of a man whose head was violently bent forward as the result of a fall. As a result, a sudden strain was put upon the muscles of the neck, and he became hoarse from inability to approximate the cords.

DR. W. E. CASSELBEERY mentioned the case of a clergyman who was accustomed to become very much excited in his pulpit work, and gradually developed a similar condition to that seen in the case mentioned by Dr. Rice. Rest and the formation of the habit of more quiet speech greatly improved the condition.

A Case of a Pin in the Larynx for Two Years; Removal by Endo-Laryngeal Methods.—This paper was read by DR. A. W. DEROLDES, of New Orleans.

The patient was a young girl in whose larynx a pin was found situated on the posterior portion, having pierced the apex of the right arytenoid at its inner side. Its head was embedded more deeply on the right side just above the false cord. Forceps was applied, the left index finger being placed behind the larynx to steady it. The forceps slipped, but the finger caught the pin, which was thrown out of the mouth. In such cases, when the head of the pin was below, it might at first have passed some way down the trachea and then have been coughed upward so that the point engaged. Moreover, the head of the pin impeded its migration so that it did not move about in the tissues as a needle would. The Roentgen rays might often locate the pin when it was impossible to make out its exact position by the mirror. Another point of interest in this case was a hard swelling in the neck which was probably due to infection which had stopped short of suppuration.

A Peculiar Case of Migratory Foreign Body with X-ray Illustrations.—DR. D. BRADEN KYLE, of Philadelphia, read this paper.

The patient was a woman, who constantly complained of a feeling as if a foreign body was moving about under the scalp. She suffered from intense neuralgias, which at times seemed to focus in the mastoid, and at other times in the ethmoid or antral regions. In one of these latter attacks there had been a discharge of purulent material from the naris and in the discharge was a piece of a needle. The symptoms continuing, it was concluded that still another piece was somewhere in the tissues, and an x-ray picture was made, showing a dark line in the neighborhood of the antrum, though it was impossible to tell whether the body was actually in the antrum or on the bone corresponding to one of its walls. The antrum was opened and its cavity illuminated, but nothing was found. In a short time a gumboil formed which discharged, giving escape to another piece of the needle. From this time all symptoms disappeared.

DR. S. W. LANGMAID called attention to the fact that

attempts at swallowing often caused great changes in the location of foreign bodies in the upper air tract.

DR. W. K. SIMPSON commended the trial of forceps and other instruments upon material similar to the foreign body before actually attempting the removal of the latter. He found sharp forceps better than merely roughened blades.

DR. KYLE closed the discussion. He stated that the patient had suffered from an x-ray burn, and remarked that the time of the exposure causing the burn was not so long as the exposure on previous occasions when no burn had resulted.

Tracheal Injections in the Treatment of Pulmonary Tuberculosis.—This paper was read by DR. T. MORRIS MURRAY, of Washington.

He gave a short history of the development of this procedure, and then mentioned his personal experience with thirteen cases of pulmonary tuberculosis. In all there was at first a slight explosive cough, but in all the general effect on the cough had been good. No spasm had been noted. The solution used consisted of thyme and eucalyptus oils in olive oil. His experience had been that cough and expectoration had both been lessened, while the temperature had fallen and the general condition had been improved.

DR. W. E. CASSELBERRY believed that the benefit from this plan of treatment was confined entirely to the bronchitic element of the disease. He had no confidence in its alleged effect upon the general course of the tuberculosis. It did, however, benefit some of the symptoms attributable to the mixed infection which pulmonary tuberculosis presented.

D. J. SOLIS-COHEN observed that this was not a new plan of treatment, as it had been practised forty years ago. Its greatest benefit was seen in cases of bronchiectasis.

Correction of Deviations of the Nasal Septum.—DR. JOHN O. ROE, of Rochester, read this paper.

It was an exposition of the plan of operation previously presented by the writer, whereby the septum was fractured by a fenestrate oblique forceps. Of all deviations

five per cent. involved the posterior part of the bony septum, twenty-five per cent. the anterior cartilaginous part, and from sixty-five to seventy per cent. the osseo-cartilaginous junction. Other descriptive terms simply referred to varieties and not to location. For anterior deviations he advocated a horizontal incision and an oblique bevelled incision, forming more or less of an angle with the first. By this device, the flaps would more easily slide by each other.

Surgery of the Turbinal Bodies, with a New Method of Operating.—This paper was read by DR. J. E. BOYLAN, of Cincinnati.

He advocated the removal of large portions of turbinates when the obstruction had resulted from hyperplastic changes. The obstruction was more apt to be located at either end of the turbinate. Posterior obstruction was rarely of a hyperplastic nature. For instruments he used the saw, snare and scissors, especially the snare. In this way he obtained better results than from the cautery.

DR. W. E. CASSELBERRY used the cautery but was careful to make deep linear incisions, and in this way he had no septic or other trouble. He urged caution in its use on the middle turbinate, care being taken to confine its action to the lower dependent portion of the bone, which he never cauterized on its upper surface.

Hemorrhage from a Peritonsillar Abscess.—DR. W. F. CHAPPELL, of New York, related this case.

His patient was a young man aged twenty-seven years, who had had several quinsies, the most recent of which had been opened by an incision through the posterior pillar. Half an ounce of pus was evacuated. Five days later there was a severe bleeding. The urine showed albumin and casts. The bleeding recurred, and the abscess cavity appeared filled with clots. An incision was made through the anterior pillar, and the cavity washed out and packed daily for ten days, at which time the patient was well. Later a rheumatic attack came on without cardiac lesions. The condition of the kidney had continued up to the time of latest observation. When the cavity was opened for washing out, the ascending pharyngeal artery could be seen, but there were no evidences of ulceration. Dr. Chappell had been able to find the records of ten similar cases. All had occurred in patients in whom the quinsy had burst spontaneously. In no case had there been immediate hemorrhage. Of ten cases, eight had been fatal. In the two recoveries the carotid had been tied. The lesson from these figures was to open early.

• ABSTRACTS FROM CURRENT OTOLOGIC, RHINO-
LOGIC AND LARYNGOLOGIC LITERATURE.

I.—EAR.

The Therapeutic Effects of Vibratory Massage in Chronic Deafness.

OSTMAN, PROF. (*Laryngoscope*, January, 1900.) Ostman gives the details of his observations in three cases and arrives at the conclusion that vibratory massage is contraindicated.

1. In all the acute inflammatory conditions of the sound conducting apparatus.

2. In all diseases of the sound perceiving apparatus with normal sound conduction. If, however, rigidity of the ossicles exists it would be well to try the massage.

3. It would seem from its mode of operation, that vibratory massage is of little benefit in middle ear diseases, attended with retraction of the ossicles, in simple chronic middle ear catarrh, or when there is extensive atrophy of the membrana tympani.

To form a fair estimate of possible benefits, two weeks of treatment is necessary in all cases.

Seymour Oppenheimer.

History and Discussion of a Case With Meniere's Lyndrome.

HOOPLE, HEBER N. (*The Laryngoscope*, December, 1899.) A case is reported of chronic non-suppurative middle ear disease attended with involvement of the labyrinth; in other words a case of mixed disease, with vertigo exaggerated to an unusual degree, simulating the apopleciform condition found in true Menières disease.

After reviewing the opinions of many authorities regarding such a syndrome the author states it as his opinion that the association of deafness with vertigo and perhaps tinnitus, constitutes the ensemble whose pathologic cause is determinative in the disease. In all cases in which they occur together, such pathologic factors are at work as would by their combined effect bring about a state of "hyper-irritability of the labyrinth." This state consists of high tension of the labyrinthine fluids, producing upon

the organ of Corti that effect of loss of function which like the pressure of tension in glaucoma is produced on the rods and cones of the retina.

Many reasons are advanced for this line of thought, the author concluding by asserting that he sees no good anatomico-pathologic basis for separating cases into mild and severe grades, as does Gustav Brunner, for all forms and types would have the common pathologic factor of disturbed intralabyrinthine tension.

Seymour Oppenheimer.

The Rinne and Gellé Tests.

BRÜHL, Freiburg i. B. (*Archives of Otolology*, Vol. XXIX, No. 1.) By routinely carrying out examinations, the Rinne test by Bezold's method using A¹, C, c¹, c², and the Gellé test with D¹ tuning forks the author noted the following important diagnostic facts:

1. If the Rinne test is positive, then Gellé is also unexceptionally positive and the impaired hearing is due to nervous affections.

2. If the Rinne test is negative absolutely and totally, or up to c¹, the Gellé test is unexceptionally negative and the impaired hearing is due to a stapes anchylosis.

3. If the Rinne test is negative below or up to the C limit, and positive above it, then the Gellé test decides whether a stapes anchylosis exists or not. *Campbell.*

A Review of the Present Position of Intra-Tympanic Surgery in Chronic Suppurative Otitis and in Sclerosis of the Middle Ear.

FERRERI, GHERARDO. (*The Laryngoscope*, December, 1899.) The author in his review of the question of intra-tympanic surgery, concludes that if in sclerosis of the ear, a lesion is in its first phases, and the acoustic disturbances complained of by the patient are not very great it would be reprehensible not to try, before having recourse to surgery, a course of general treatment, combined with intra-tympanic injections. That in cases of incipient sclerosis, in individuals who are still young and robust it would be well, when we have to combat simply hyperplasia or proliferation of the mucous membrane, to try the action of thyroid tablets, taking two or three a day of thirty centigrams (five grains) each, or to use intra-tympanic injections of jequirity, according to the method of

De Rosri, or injections of digestive ferments, (the pepsin of the dog in the strength of one per 10,000) according to the methods of Cohen Kysper, of Hamburg.

That in hyperplastic form which are strictly limited to the middle ear there should be surgical interference only when in addition to other tests Rinné's test remains negative.

That when the patient was afflicted with paracusis and vertigo, but there is no deterioration of hearing, interference should be limited to the extraction of the malleus and incus. Where, however, the operation is not efficacious, and the tinnitus and vertigo return or where there is a gradual loss of hearing he proceeds to mobilization of the stapes, but when in addition to the paracusis a decided diminution of hearing is present, temporary myringectomy is immediately performed.

When surgical interference is necessary to diminish the acoustic disturbances associated with ankylosis of the stapes it is preferable to perform a stapedectomy.

Seymour Oppenheimer.

Facial Paralysis as a Complication of Acute Otitis Media.

MURRAY, Minneapolis. (*Archives of Otolaryngology*, Vol. XXIX, No. 1.) Out of 258 cases of acute otitis media treated at the Illinois Eye and Ear Infirmary during the year of the author's service the above titled complication appeared but twice and in both of these cases recovery took place shortly after the cessation of the discharge. *Campbell.*

A Method for the Functional Examination of Diseased Ears.

BEZOLD, Munich. (*Archives of Otolaryngology*, Vol. XXIX, No. 1.) Under the author's direction Edelmann has made a continuous tone series which answers for testing the lower six octaves of the tone scale from C₂—C''', by means of clamped tuning forks with movable weights, two organ pipes and a modified Galton whistle for the adjoining upper part of the scale to the highest hearing limit.

Examination with speech is essential and is our best means to gain a general survey of the hearing power in a given case.

A further functional examination is necessary.

1. When a discrepancy exists between the objective otoscopic examination and the diminution of the hearing for speech.

2. In cases of slight deafness where Mt. and the middle ear show no objective changes.

In carrying out the examination the procedure is as follows:

(a) Determination of the upper and lower limits with the continuous tone series.

(b) Measuring the hearing duration (usually for A and a') from the vertex after Schabach.

(c) Rinné's test (usually with a') with the difference noted in seconds between air—and bone—conduction.

(d) Weber's test.

In order to have a uniform method of expression for annotating our hearing tests we should follow the numeration given by Helmholtz.

C_2	C_1	C	c	c'	c''	c'''	c ^{iv}	c ^v
16 v.d.	32	64	128	256	512	1024	2048	4096

To measure an equal pressure of the forks in Schwabach's and Rinné's tests, let them rest on the vertex by their own weight.

The tone limit is given by the lowest tone that can be perceived, an island by the two border tones still perceived, a gap by the two border-tones not perceived. *Campbell.*

The Intratympanic Masseur.

WEAVER, W. R. (*The Laryngoscope*, November, 1899.) The writer describes an instrument which he devised, which he terms the "Intratympanic Masseur." It can be tolerated by the patient longer than ordinary Politzerization and gives the best results in tympanic disease where there is the least amount of Eustachian irritability.

Seymour Oppenheimer.

A Case of Cerebral Abscess Following Purulent Inflammation of the Middle Ear—Operation--Evacuation of Abscess--Death.

MAY, New York. (*Archives of Otology*. Vol. XXIX, No. 1.) The patient, two years previously, had severe pain in the left ear, followed by discharge. The discharge continued one year, then ceased. Two weeks prior to admission pain and discharge again were complained of, she became irritable, excited and began to moan and scream. This stage was soon succeeded by drowsiness. Pulse, 60; temperature, 99.6°F. Ophthalmoscopic examination showed papillitis of moderate severity on both sides.

Mastoid tender, but no swelling or redness over it. On opening the mastoid process it was found eburnated and almost devoid of cells. The antrum was opened and found empty. The scalp incision was carried upwards and the cranium opened $1\frac{1}{4}$ inches behind the centre of the external auditory meatus and $1\frac{1}{4}$ inches above its horizontal plane. The dura was somewhat congested; an aspirator needle was pushed into the temporo-sphenoidal lobe, and at a depth of one inch, two drams of fetid pus found. The brain opening was enlarged and drainage tube and gauze inserted. The patient did not rally after the operation. No autopsy was permitted, but there was no sign of meningitis, no involvement of sinuses. The tegmen tympani appeared normal. The attic was found full of pus, granulation tissue and cholesteatomatous masses. *Campbell.*

Rheumatoid Arthritis in Chronic Diseases of the Middle Ear.

R. A. BAYLISS. (*Laryngoscope*, November, 1899.) A large number of cases of rheumatoid arthritis were observed to be extremely deaf, both ears being affected to a similar degree.

The condition came on gradually and progressively became worse. The customary tests showed loss of hearing worse for the lower tones and at times the watch was quite inaudible unless held close to the auricle. Rinné's test gave nearly always a marked negative. On applying the fork to the vertex a positive result was obtained on one side or another, though occasionally the patient was unable to differentiate between the intensity of sound conveyed to each ear.

The drum membrane was found as a rule to be thickened and the handle of the malleus foreshortened, and the anterior and posterior folds accentuated.

The writer believes from a pathologic standpoint, the trouble begins as a chronic inflammation of the ossicular joints with cartilagenous degeneration and subsequent erosion of the bones, leading to complete ankylosis.

Daily Politzerization and suction and the use of Lucae's spring probe as an adjunct to other treatment are recommended.

Seymour Oppenheimer.

A Series of Cases of Suppurative Disease of the Temporal Bone, With Comments.

BURNETT, Washington. (*Archives of Otology*, Vol. XXIX.,

No. 1.) The author reports seriatim the histories of ten cases occurring in the white and colored races; the series comprising simple cases to those most severe ending in death, and the ages vary from six months to seventy-two years. He notes as his experience, covering a period of more than twenty years, that middle ear sclerosis is much less common among adult negroes than among the whites, furthermore he has never seen a case of mastoiditis in an adult negro.

Negro children, however, are very subject to diseases of the bones, particularly in the form known as tubercular. The negro child is usually badly nourished, has a low power of resistance and recuperates slowly. In case 9 inflammation seems to have started in the temporal bone, without any previous ear trouble. The article is well worth reading in its entirety. *Campbell.*

Excessive Hemorrhage Following the Removal of a Myxo-Fibroma From Ear.

DUFOUR, Washington. (*Archives of Otology*. Vol. XXIX., No. 1.) A woman, aged 50, with a history of suppurative otitis media of many years standing, presented herself with a protruding aural polyp and an abscess on the tragus. On attempting its removal with the cold wire snare, it could not be cut through—so it was removed by torsion. Hemorrhage was so free that pressure of the carotid artery was employed. Finally bleeding was checked by packing the canal with iodoform gauze.

Campbell.

A Fatal Otitic Abscess in the Left Temporal Lobe of the Brain, Causing Word-Blindness. Operation. Autopsy.

KNAPP, New York. (*Archives of Otology*. Vol. XXIX., No. 1.) A child, aged 12, had left-sided otorrhea off and on since childhood. For the past 18 months discharge has been continuous. Four weeks previous to coming under the author's observation she had an attack of intense frontal headache with nausea and vomiting. Unconsciousness suddenly came on and she had violent convulsions for six hours. Upon examination the patient was found excited, but rational. Temperature 101°F. Eyes normal. Scant secretion from the ear, no sagging of the posterior upper wall, no granulations, slight swelling and tenderness over the mastoid. Optical amnesic aphasia pro-

nounced. When she was asked the name of an object held before her, she said, "I know what it is, but cannot name it;" when told, she instantly and correctly repeated the word.

The diagnosis made was: deep mastoid epitympanic caries, epidural and cerebral abscess, beginning meningitis. Upon operation the antrum was found packed with cholesteatomatous masses. The posterior cranial fossa was exposed, but the dura and sigmoid sinus showed no abnormality.

The upper wall of the attic was found carious, and was removed. The dura here was congested, slightly uneven and dull. Near the posterior-medial corner was a blackish round spot in the dura, with a central depression through which a probe was passed 4—5 cm. into the brain without any resistance or bringing forth pus or blood.

The wound was dressed and patient put to bed. For two days the child was much improved, was cheerful and named most objects at sight. Then she began to complain greatly of headache, temperature rose, pulse slow, and it was decided to again operate, but death suddenly supervened.

On autopsy the dura showed dark venous congestion, a few adhesions of dura to anterior surface of petrous bone, some also to the occipital lobe.

An abscess cavity occupied the middle of the temporo-sphenoidal lobe. It was surrounded by a dense, uniform white capsule. It was perforated in two places in front, the contents being mixed with the broken-down surrounding tissue and at the posterior medial wall into the posterior outer cornu, the contents filling the lateral and third ventricles and mixing with the softened cortex of the adjacent posterior part of the temporo-sphenoidal lobe.

The inner dimensions of the abscess cavity were: Sagittal 45 mm, vertical 26 mm, horizontal 20 mm. *Campbell*.

The Petro-Squamosal Sinus; Its Anatomy and Pathologic Importance.

CHEATLE, A. H., London. (*Journal of Laryngology, Rhinology and Otology*, January, 1900.) The writer considers the comparative anatomy of this sinus, calling attention to the fact that in some of the lower animals—the dog and calf, for instance—it runs across

the roof of the middle ear, making its exit by means of a large foramen between the base of the zygoma and the bony meatal wall. In the higher forms of monkeys, the sinus closely resembles the human. In early fetal life, before the formation of the jugular vein, the petro-squamosal sinus carries all the intracranial venous blood emerging in front to open into the primitive jugular which naturally accounts for its persistence in later life. Examination of 2,585 skulls in the Royal College of Surgeons' Museum showed 23 rudimentary remains, 3 in the glenoid cavity, 3 in the zygomatic process itself, 6 in the base of the zygoma and 11 just external to the glasserian fissure. In infancy and childhood, the sinus, as a rule, is well marked, opening into the lateral sinus behind by means of a valve-like opening and in front joining the middle meningeal vein while in adult life, although it is often marked, careful search must sometimes be made. Numerous irregularities are often seen; it is at this spot that a bridge often forms over the posterior end of the sinus before it opens into the lateral sinus, a common condition in the adult bone. Several interesting specimens are demonstrated. The pathologic importance of the connection between the veins of the middle ear and those of the meninges and occasionally with those of the temporo-sphenoidal lobe is very evident as explaining how infection may spread from the middle ear to the meninges and brain without macroscopic evidence of the connection.

Loeb.

The Topography of the Facial Nerve in its Relations to Mastoid Operations.

JOYCE, R. D., Dublin. (*Journal of Laryngology, Rhinology and Otology*, January, 1900.) Thirty temporal bones were subjected to systematic examination to ascertain the precise relations of the facial nerve to the surface of the adult skull; its depth as well as that of the external semicircular canal from the surface; and the relation of both these structures to the operations on the mastoid region. Each temporal bone was cut vertically from before backward, beginning in the angle between the petrous and squamous portions, so as to expose the aqueduct of Fallopian in its entire extent; the external semicircular canal was also cut across by the same sec-

tion in every case. The facial canal was projected on the surface by drilling from the exposed canal outward, the holes being made accurately at right angles to the sagittal plan and parallel to one another. The distance of the facial canal was measured from three points on the surface of the bone, viz., (a) immediately behind the external auditory meatus on a horizontal line passing through its centre; (b) immediately behind the upper part of the meatus and immediately below the level of its upper margin; (c) a point high up over the middle of the meatus on the posterior root of the zygoma.

The results of the examinations were as follows:

1. The facial canal lies altogether in front of the mastoid process and a drill sent straight in from any point on the surface of the latter cannot injure the nerve.

2. Measured from point b, the facial canal was in 43.3 per cent. of cases more superficial than the external semicircular canal; in the same percentage of cases this was just reversed; and in the remaining 13.4 per cent. these two structures were the same distance from the surface. Thus the external semicircular canal cannot be taken as a guide to the facial nerve.

3. The average distance of the facial canal from point b is slightly less than that of the external semicircular canal from the same point.

4. In removing the outer wall of the attic, it should be remembered that the external semicircular canal is almost always (91 per cent.) nearer the surface at point c than the facial nerve; however, as it is 1.5 mm. higher than the latter, it is almost out of danger; besides, it has a thicker covering of compact bone in this situation than the nerve.

Loeb.

Endothelial Fibro-Angioma of the External Auricular Meatus.

MELZI, URBANO, Milan. (*Journal of Laryngology, Rhinology and Otology*, January, 1900.) With a Wilde's polypus-remover, a reddish brown tumor with a knotty surface was removed from the posterior-superior wall of the canal. It proved to be of a connective endothelial nature, the surface being covered with stratified and pavement epithelium. Numerous vessels crossed it in every direction forming numerous anastomoses and disposing themselves in groups like a plexus.

Loeb.

Tumor of the Medulla and Pons Causing Deafness and Other Remarkable Symptoms.

GRAY, A. A., Glasgow. (*Journal of Laryngology, Rhinology and Otology*, January, 1900.) The following signs were present: Whispered voice, right ear unaffected, left ear vey deaf, hearing it only at a distance of two inches; watch-tick normal three yards, right ear one yard and left only on contact; tuning-fork by Weber's method, sound best heard in the right ear; with Rinné the fork is heard 35 seconds longer by air than bone conduction in the right ear, while the same for air the left is heard seven seconds longer by bone than air conduction; right membrane tympani normal, left drawn in; left side of palate paralyzed, uvula drawn to right; anesthesia over soft palate; left vocal band rigidly fixed in the middle line, right unaffected; left eye bloodshot and both pupils contracted, the left more than the right; right pupil responds to light but not to accommodation, left to neither; left side of face is paralyzed and lower jaw is stiff; tongue cannot be protruded far and turns to the right; taste abolished on the left side of tongue; plantar and knee-jerk reflexes stronger on left than on right side, ankle clonus absent on both sides; left side of body, face and limbs sensible to changes of temperature, right side cannot distinguish difference between hot and cold tubes; right side cannot tell the difference between contact with a pin and the finger, left side this is possible except on the face; on the left side power of perceiving two separate points of contact as such is much more acute than the right. On autopsy a lesion was found accompanying the left half of the medulla and floor of the fourth ventricle.

Loeb.

A Case of Mastoid Abscess, Followed by Cerebellar Abscess, the Result of Otitis Media: Death.

DONALD. (*The Glasgow Medical Journal*, January, 1900.) A girl, aged 11, for several years had suffered from intermittent pain in and discharge from the left ear. On admission to the hospital she was emaciated, drowsy and when aroused her speech was slow and jerky. Pulse slow, temperature subnormal. There was mastoid tenderness, but no swelling or redness present. The mastoid was opened and caseous pus and granulation tissue found. The

exploring needle was passed into the cerebellum but no abscess cavity found. The patient appeared to convalesce satisfactorily for about 2 1/2 weeks, though her speech was slow and undecided; then she began to complain of frontal headache, became drowsy, restless and refused nourishment. Coma suddenly developed and the mastoid was again opened; after scooping out soft granulation tissue, there appeared a bulging into the cavity, from its posterior aspect, which proved to be brain tissue. The cerebellum was again exposed and by passing an exploring needle deeply into its substance six drams of pus escaped. The patient did not regain consciousness and died the following day. On post-mortem there was found a septic thrombus of the left lateral sinus with ulceration of its wall, and communicating with a large abscess cavity occupying the left lobe of the cerebellum; thrombosis of the longitudinal sinus with marked dilatation of the veins leading into it. The cerebrum was normal and no evidence of meningitis shown.

Campbell.

Auricular Septicemia from the Color-Bacillus in Association With the Bacillus Perfringens.

BAUP and STANCULEANU. (*Bulletin Medical*, 1900, No. 13.) In case of septicemia arising from thrombo-phlebitis of the lateral sinus, the patient exhibited hypothermia, diarrhea and asthenia. The color-bacillus and an anaerobic microorganism, the *bacillus perfringens* of Veillon and Zuber were recovered from the pus in the mastoid, from the sinus and from the blood in the organs at the autopsy. These microorganisms injected separately into animals caused slight lesions; on the other hand when injected together they gave rise to a rapidly fatal septicemia.

Goodale.

A Case of Actinomycosis of the Middle Ear, With Report of the Autopsy.

BECK. (*Prager medicin. Wochenschr.* 1900, No. 13.) A man, fifty-four years of age, exhibited a pure infection of the middle ear from actinomycosis of unknown origin. The bones of the base of the skull became invaded by progressive extension of the process. The left vertebral artery finally became softened and ruptured, producing a fatal intermeningeal hemorrhage.

Goodale.

II.—NOSE AND NASO-PHARYNX.

The Principles of Stuttering.

COEN, R. (*The Laryngoscope*, February, 1900.) The gratifying results obtained from the employment of breathing gymnastics in the treatment of stuttering leads the author to define stuttering as a diminution of the faculty of breathing. The therapy involves five principles.

Firstly. (a) Deep continued inspiration.

(b) Short expiratory movement of the breath.

(c) Gradual prolonged extirpation.

(d) Holding of the breath.

All of these exercises should call into use a series of the accessory respiratory muscles, particularly the diaphragm.

Secondly. The regulation of the vocal and speech producing organs by gradually increasing the intensity and rapidity of vocalization of the vowels and diphthongs.

Thirdly. The elimination of the spasmodic periods, which occasion disturbances of innovation. By alternating soothing methods and suggestions with stimulation of the nervous system, hydro and electro-therapeutics and pharmacæutic preparations, this important factor in the pathology of stuttering is controlled.

Fourthly. The strengthening of the will power of the patient.

Fifthly. General stimulation and toning up of the system.
Seymour Oppenheimer.

On Congenital Occlusion of the Choana.

MORF, J., Winterthur, Switzerland. (*Fraenkel's Archives*, X, 1, 173.) The theory advocated mostly by Koesner, that arrest of development and deformity of the upper jaw and nose are a result of obstruction of nasal breathing has not been universally welcomed. Siebenmann and his school have, on the contrary, come to the following conclusions, based on accurate measurements made on racial skulls of the Bale collection.

1. High, narrow palate (hypsisstaphylia) is, usually, accompanied also by narrowness of the upper part of the face (leptoprosopia).

2. Narrow nasal cavities (leptorrhinea), narrow orbits usually are associated with the "high palate" skull.

3. Hypsisstaphylia, as a rule, is due to a racial pecul-

ilarity of the skull, and not to extrauterine, later influence of nasal stenosis.

Haag, furthermore, stated that, in 28.6 of all cases of congenital atresia of the choana, a normal palate was found notwithstanding mouth breathing since birth, and proved, in three new cases of bilateral congenital atresia of the choana, that in these also the high palate was but a part of the leptoprosopia. The author considers his case of unilateral congenital occlusion of the choana with high palate in leptoprosopia conformatory of the Siebenmann-Haag theory.

A farmer, 43 years old, complains of impairment of hearing in both ears since birth. For about one year, hearing has become worse, especially in the left ear. He never was able to clear the left side of his nose. There was no difficulty in breathing, because the right nostril was always patent. He states of his own accord that, when he works hard, the left side of the face begins to sweat sooner and sweats more than the right. The left half of the face is somewhat smaller than the right. About 6 cm. within the left nasal cavity a wall can be felt with the probe, bony only in its lower third.

The sense of smell is good on the right, and entirely lacking on the left side. The alveolar border is V-shaped; the hard palate is symmetrical, high, narrow and long. The raphe is very deep. The soft palate is abnormally long; the uvula bifid in its lower third.

1. Length of the hard palate, 6.5 cm.

2. Distance from anterior nasal spine to diaphragm, 5.8 cm.

3. Distance between incisors and posterior pharyngeal wall, 8.8 cm.

4. Height of upper face, 7 cm.

5. Breadth of molar eminences, 13.5 } upper facial height

$$\text{index} = \frac{\text{height}}{\text{width}} \times 100 = 51.1.$$

6. Greater breadth of bony entrance of nose, 25 cm.

$$\frac{\text{breadth}}{\text{height}} \times 100 = 46.29.$$

The diaphragm was perforated by a trocar of 1 cm. width;

the upper, bony portion removed through this opening with Krause's double chisel; the large, membranous part, with a probe-pointed knife. The large opening cicatrized without difficulty. The patient now smells as well on the left as on the right side.

In this patient there is, with pronounced hypsistaphylia, a nasal index of less than 47 and an upper facial index of more than 50.1; i. e., and leptoprosopia, just as leptorhinia, in the Siebenmann-Haag cases. If the high palate were to be ascribed to the impairment of nasal breathing, and not to the association with leptoprosopia it would be strange that the left half of the palate is not more marked than the right. To be sure, some cases are reported with a symmetrical palate, but in them the palate sometimes appeared more arched on the unaffected side. It is more probable that this symmetry as well as the atresia of the choana and, what is occasionally found associated with it, the hypoplasia of one or the other (usually the same) side of the face are brought on by intrauterine arrest of development.

Morgenthau.

A New Nasal Septometer.

PYNCHON, EDWIN. (*The Laryngoscope*, December, 1899.)

An instrument intended to overcome certain disadvantages which are encountered in the use of Seiler's septometer. It is found particularly useful in ascertaining the thickness of the septum posterior to the crest of the greatest prominence.

Seymour Oppenheimer.

The Tumors of the Nasal Septum Exclusive of the Malignant Neoplasms.

HASSLAUER, DR., Wurzburg, Germany. (*Fraenkel's Archiv.*, X, 1, 60.) The author collected all cases from the literature as far as accessible, and treats of them, laying especial stress on the histology of the single varieties. To each group is added a table of all cases found in literature and of those observed by the author, or left at his disposal.

The 281 cases of septal tumors are distributed as follows: tuberculoma, in 81 cases, bleeding polypus of the septum, 57 cases. In both groups the predominance of women as patients is noteworthy. Compared with these two forms of tumors, the others occur but rarely. Papillary growths were found in 35 cases, of which 20 were

papilloma durum, and 15 were papilloma molle. Fibroma edematosum was found about 30 times, a most remarkably small number considering the frequency of this form of tumor in other parts of the nose. Syphilomata, gummata, etc., in 26 cases, polypoid hyperplasia was observed 16 times. Fibroma, 9 times; myxoma, 6 times; adenoma 4 times; enchondroma, 4 times; cysts, 3 times. In addition, there were 10 cases of various odd tumors. *Morgenthau.*

Asthma In Relation to the Upper Air Passages.

MCBRIDE. (*Edinburgh Medical Journal*, July 1899.) The most generally known form of nasal asthma is that variety, which occurs in the course of hay fever. It is generally admitted that hay fever requires for its development a neurasthenic or at least a neurotic condition, which acts as a predisposing cause. Anglo-Saxons are more prone to be affected than persons of other nationalities and it is more common among the well-to-do class.

A less common form of nasal asthma seems to depend upon the presence of nasal polypi and particularly where polypi are small, rather than polypi of larger growth.

In certain cases of hypertrophic catarrh and deviations or outgrowths from the septum we also meet with asthma, which may be benefited by local treatment. The author's experience has been that in those asthmatics with spots on the nasal mucosa, which when touched with a probe produce cough, will be practically cured, when these spots are touched by the electric cautery. These cough spots are usually situated on the inferior turbinated bodies. Cases have been reported as cured after the removal of enlarged faucial tonsils and after destroying granulations upon the posterior pharyngeal wall. On one occasion the author found asthma apparently cured after the removal of adenoid growths from a young boy.

Campbell.

The Sense of Smell in General Paralysis.

TOULOUSE and VASCHIDE. (*Bulletin medical*, 1900, No. 11.) Among twenty women affected with general paralysis, eight possessed no sense of smell. The authors give the proportion in normal adults as one in thirteen. In the cases under consideration, all were able to smell at the beginning of the general affection. The anosmia may be explained either by lesions of the olfactory nerve, or by

localized cortical changes, which are of frequent occurrence in general paralysis. *Goodale.*

Appropriate Treatment of Certain Varieties of Nasal Deflections and Redundancy.

KYLE, D. BRADEN. (*Laryngoscope*, January, 1900.) The author attributes all deflections of the septum to three distinct causes.

1. Deflections due to syphilis, tuberculosis and ulcerations following diphtheria, typhoid, etc.

2. Deflections due to traumatism in childhood.

3. Congenital deformity resulting from the pressure exerted in the maternal canal upon the soft nasal bones, during the process of delivery.

Only cases where obstruction to the nasal respiration is present, is surgical interference indicated. The facial expression is markedly dependent upon the freedom of the nares. No plan of treatment is given that would be applicable to all cases of deviation and deflection, Dr. Kyle suggesting that each individual case with its own peculiarities demands its own special modification of treatment.

Several cases and many instances are described in detail. *Seymour Oppenheimer.*

Caseation of Acute Empyema of the Antrum of Highmore.

AVILLIS, G, Frankfort-on-the-Main, Germany. (*Fraenkel's Archiv.*, X, 2, 270) The consensus of opinions is, to-day, that acute empyema of Highmore's antrum is either cured (spontaneously or with artificial aid) or that it becomes chronic. But the author maintains empyema may terminate still differently, as do other abscesses. They are either absorbed or evacuated spontaneously or artificially, or they become inspissated and caseated.

The author reports three cases lasting several years, months or weeks, in which it was difficult to irrigate the antrum (obstruction of opening into nose), and in which grumous, inspissated, caseous, and very fetid pus was removed. To the surprise of the physicians, one irrigation sufficed for a cure. Only clear water flowed from the nose afterward. The cure was permanent, and objective and subjective symptoms did not return. This almost instantaneous cure, even after long duration of the disease, proves that, in these cases, the contents of the antrum are

not the purulent exudate of the inflamed mucous membrane, which is always renewed, but *dead matter, a foreign body*. The author advises in making a prognosis.

1. To await until the day after the irrigation.
2. To examine the pus microscopically when the secretion is fetid and can be removed only with great difficulty.

Grumous appearance and fatty degeneration make a cure probable immediately after opening into the antrum.

Morgenthau.

Adeno-Sarcoma of the Nasal Septum.

BAKER, ALBERT RUFUS. (*The Laryngoscope*, October, 1899.) A case of a woman, age forty-nine, with a tumor upon the cartilaginous septum of the nose, giving a history of obstructed nasal respiration and frequent bleeding. Portion of the tumor was removed with the cold snare. The examination of the growth showed it to be a non-malignant adenoma. Following the operation an otitis media followed, which after stubbornly resisting treatment yielded. Two years later, recurrence of the growth was noticed. The tumor grew rapidly, showed no tendency to bleed, was larger and extended back upon the bony septum. A section was examined and found to be adeno-sarcoma. Operation was performed and no recurrence noticed one year later.

Seymour Oppenheimer.

The Condition of the Blood (Hematologic Formula) in Children With Adenoid Vegetations, and Its Changes After Operation.

L. LICHTWITZ and J. SABRAZES, Bordeaux, France. (*Fraenkel's Archiv*. X. 2. 278). Aside from the various symptoms due to mechanical causes in children with post-nasal growths, there are disturbances of the general nutrition (adenoid cachexia). The children are frail; their weight remains the same or increases but slowly, often without loss of appetite or any hereditary taint or any co-existent disease. The authors have investigated if this bradytrophia is not dependent on some profound change in the composition of the blood. Technique. For counting, hematometer of Hayem-Nachet; for determining the quantity of hemoglobin, the hemometer of Fleischl; for staining, fixation at 115° C., eosin, and a mixture of eosin, methylene blue methylal. The percentage of leucocyte types was determined in every case of about 400 white blood

corpuscles. The results found in the examination of the blood in a number of normal children and of some with adenoid growths, before and after operation, are, in average figures as follows:

	Normal Children.	Children with adenoids Before Operation.	Children with adenoids After operation
Red blood corpuscles	503830	302505	4,46914
White "	8490	9487	8208
Hemoglobin	82%	74%	70.50%
	per cubic mm.	per cubic mm.	per cubic mm.
Polynu-clear { neutrophile leucocytes	73% } 6197	56.96% } 5403	65.76% } 5397
Mononuclear	24% } 203	3.33% } 319	3.19% } 270
Lymphocytes	29.12% } 1708	29.11% } 2761	24.60% } 2019
Eosinophile	3.44% } 232	9.99% } 947	6.23% } 911

It appears, therefore, that the change in the blood of children with growths are: a slight degree of anemia and of leucocytosis; increase of the percentage and of the absolute number, per cubic mm. of the large mononuclear cells; and especially of the lymphocytes and the eosinophile cells a decrease, on the other hand, of the relative and absolute proportion of the neutrophile. polynuclear cells. After the operation, the blood approaches the normal condition. These observations are of practical importance in deciding upon the necessity of an operation, for the cachexia of such children is not exactly in proportion to the size of the growths which may be present.

Morgenthau.

III.—MOUTH AND PHARYNX.

On Mouth Breathing.

BUNCH. (*The Edinburgh Medical Journal*, July, 1899). The author goes very fully into the causation and results of this pernicious habit and concludes by stating that many phthisical patients, more especially those, whose work keeps them out of doors in all weathers have in earlier years been mouth breathers and it is on account of the tubercle bacilli being inhaled by the mouth and lodging in the folds of the pharyngeal mucous membrane, more especially if there be abrasions there, that the lymphatics carry the bacilli to the lymph glands, where they are incubated under the most favorable conditions, and a tubercular focus results.

Campbell.

A Case of Longitudinal Hypertrophy of the Tongue.

GIROD. (*Gaz. des Hopitaux*, 1900, No. 26.) A feeble-

mind woman, forty-five years of age, exhibited a tongue the tip of which could be pulled seven centimeters beyond the alveolar border. The organ was normal in thickness, width and consistence but showed much impairment of motility. The enlargement appeared when she was ten years old, following a severe brain fever, and was associated with a corresponding loss of speech. *Goodale.*

Streptococcus Infection of the Mouth in an Infant.

BRINDEAU and MACE. (*Gaz. Hebdom. de Méd., et de Chir.*, 1900, No. 17.) An infant born at term showed, five days after birth, two pterygoid plaques of apparently benign nature, which on bacteriologic examination were shown to contain numerous streptococci. In a few days one of the patches began to exhibit an increased area of ulceration which rapidly reached the alveolar border of the upper maxilla. The dental cavity of a molar became infected and the tooth was expelled spontaneously. Death ensued shortly from generalized erysipelas. *Goodale.*

Tuberculosis of the Tonsils.

LABBE and LEVI SIRURGUE. (*Gazette des Hôpitaux*, 1900, No. 20.) After a bibliographic review, the authors present the results of their histologic examinations. In the most frequent form characterized by infiltration and ulcerations, sections show the epithelial layer to diminish as the ulceration is approached and finally to disappear. In the cavity excavated by the ulcer are found desquamated epithelial debris and leucocytes. The epithelium in the vicinity presents signs of prolonged irritation and is infiltrated with small round cells and polynuclear leucocytes. The base of the ulcer shows marked alterations in the tonsillar tissues. Most of the follicles have disappeared; those which remain show absence of the germ-centers; the protoplasm of the cells stains poorly.

Where tubercular foci are found, they are present in the form of a giant cell surrounded by a double row of epitheloid and embryonal cells.

Sclerosis is more or less developed according to the case, being at times slightly marked, at others predominating over the specific characters of the original lesions. It may even result in causing the tonsil to become reduced to a

mass of fibrous tissue, containing here and there a few aggregations of leucocytes.

Diffuse tubercular infiltration may also be observed, characterized by the pressure of epithelioid cells without giant cells.

In the miliary form the lesions are in relation to the blood vessels and deeply seated.

Tubercle bacilli are rare in the caseous forms, where they often occur in the interior of giant cells. In the cases of diffuse infiltration they are, on the other hand, very numerous, and occur between the epithelioid cells, being especially abundant on the floor of any ulcerations.

The symptomatology, diagnosis and treatment are reviewed. Goodale.

Retropharyngeal Abscess.

MARTON. (*Wiener Mediz. Blätter*, 1900, No. 6.) Spontaneous recovery from retropharyngeal adenitis without suppuration occasionally occurs. Sudden death may occur from rupture of the abscess and inspiration of its contents, or from erosion of the carotid artery, or from paralysis of the heart muscle, the latter perhaps in consequence of reflex irritation from the vagus nerve. Early incision through the mouth should be done in all cases if possible. Goodale.

IV.—LARYNX.

Transverse Wound of the Larynx at the Level of the Thyrocricoid Space; Hermetic Suture of the Larynx, of the Musculo-Aponeurotic Layer and of the Skin; Recovery in Eight Days.

MORESTIN. (*Gazette des Hopitaux*, 1900, No. 15.) In an attempt at suicide, a man made with a razor a transverse wound in the crico-thyroid space, eight centimeters long, extending into the larynx, where it involved the thyroid cartilage on the left and the crico-thyroid membrane on the right. With fine catgut sutures, the opening in the crico-thyroid membrane was closed without passing through the laryngeal mucous membrane. The separated portion of cartilage was also reunited with sutures, though with difficulty, owing to its friable nature. The succeeding layers of muscle, aponeurosis and skin were finally

tightly sutured. The patient was able immediately to speak in a natural tone. The operation was done without anesthesia. The stitches were removed from the skin in eight days. Subsequent examination showed a soft pliable cicatrix without adhesion to the deeper layers. Respiration and phonation were normal. *Goodale.*

Disturbances of the Singing-Voice.

ZWILLINGER. (*Pester Mediz. Chirurg. Presse*, 1900, No. 9.) The author recommends that all singers at the beginning of their musical career should undergo an examination at the hands of a competent laryngologist, with the object of having any pathologic conditions corrected, especially nasal obstructions. Early attention to such matters may not only render the work of the singing teacher much more productive of results but may avert actual ruining of the voice.

Among pathologic conditions of the larynx affecting the singing voice in particular the author distinguishes habitual hyperemia as differentiated from chronic catarrh by the absence of the dark grayish red color and dilated vessels of the latter. *Goodale.*

Operation on Pharyngeal Tonsil; Hemophilia; Death.

SOCH, RICHARD, Hamburg. (*Journal of Laryng., Rhi. and Otol.*, February, 1900.) A pharyngeal tonsil as large as a walnut was removed in one piece from a boy, aet. 10, with a modified knife, a combination of Gottstein's and Beckmann's pattern. When bleeding ceased, the father drove home with the child, but later profuse hemorrhage set in which seemed to stop upon tamponing with iodoform gauze. Two hours later bleeding again became profuse but seemed to cease upon the application of fresh tampons with a weak solution of ferric chloride. Two hours later, the writer was again called on account of the severe hemorrhage and at that time he learned that the boy was a hemophiliac and that his maternal grandfather had died of hemophilia. Two days later the child died without cessation of hemorrhage. *Loeb.*

Retro-Pharyngeal Abscess of Auricular Origin.

MELZI, URBANO, Milan. (*Journal of Laryng., Rhi. and Otol.*, January, 1900.) A month after an attack of double otitis media suppurativa with perforation of the tympanum, a child was taken with severe coryza and bronchitis fol-

lowed by pains in both ears and return of the suppuration on both sides. Marked improvement on the right side followed cleansing and instillation of alcohol with boric acid. After some days symptoms of severe acute pharyngitis, stiffneck and snoring presented themselves and later several attacks of suffocation. Retro-pharyngeal abscess was readily discovered and cured by incision. The same variety of bacteria was found in the pus from the ear and pharynx. *Loeb.*

The Anatomy of the Frontal Sinus and Anterior Ethmoidal Cells.

HARTMANN, ARTHUR, Berlin. (*Journal of Laryng., Rhinol. and Otol.*, February, 1900.) The author demonstrated before the Sixth International Otological Congress lantern slides showing:

1. Frontal sinus without frontal cells; (a) with a free opening to the middle meatus; (b) with an opening narrowed by a bulla ethmoidalis.
2. Frontal sinus with frontal cells from which was formed a naso-frontal canal; (a) with regular arrangement of the cells; (b) with irregular arrangements of the cells.
3. The hernia-like formation of the frontal sinus.
4. Absence of the frontal sinus. *Loeb.*

Papillomatous Growth of the Tonsil.

CLARK, J. PAYSON. (*The Laryngoscope*, February, 1900.) The author disputes the statement made by Yearsley, that benign tumors of the tonsils are of comparatively frequent occurrence.

A case is cited of a boy, aet. eight, who experienced difficulty in swallowing and talking, caused by a large mass on the right tonsil. This growth was noticed by the patient's mother some three years before, when it has been removed, only to recur in larger size. This time the mass was removed under general anesthesia with the cold snare. The hemorrhage attendant was slight and the recovery uneventful. The patient, unfortunately, has since been lost sight of. The tumor measured $1\frac{5}{8}$ in. in length, 1 in. in width and $\frac{7}{8}$ in. in thickness. *Seymour Oppenheimer.*

Epidemic of Pharyngeal and Tonsillar Inflammation and Its Cause.

MOCK, EDWARD VESTAL. (*The Laryngoscope*, Novem-

ber, 1899.) During an epidemic of throat cases, the writer was convinced that the specific cause was not in the throat but that the cases were a mild form of some of the fevers in which there is throat complications generally, but without the appearance of the positive symptoms whereby a diagnosis could be proven.

Seymour Oppenheimer.

V.—MISCELLANEOUS.

Taking Cold.

MILBURY, FRANK S. (*The Laryngoscope*, February, 1900.) The author after reviewing the physiology of animal heat production and radiation, concludes that a disturbance of equilibrium of heat production throughout the body, results in a local inflammation, plus constitutional derangement; thus if heat production is arrested at one part, it goes out with increased intensity to another, causing inflammatory action in certain parts of the body, locating itself at the weakest points.

The treatment advocated is both local and constitutional.

Seymour Oppenheimer.



